



**Adopting FIDIC 2017 Red Book Extension of Time
Procedure for Construction Projects in UAE**

**تبني آلية عقود الفيديك 2017 الكتاب الأحمر للمطالبة بتمديد المدة الزمنية
للمشاريع الإنشائية في دولة الإمارات العربية المتحدة**

by

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**Dissertation submitted in fulfilment
of the requirements for the degree of
MSc CONSTRUCTION LAW & DISPUTE RESOLUTION
at
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ABSTRACT

It has been concluded by several studies that *EOT* claims are among the most disputed issues in the construction industry due to lack, misunderstanding, or wrong application of relevant contract provisions. In the case of escalation to litigation path, the UAE *CTC* will be the framework upon which the ruling will be based. This will also be another potential area of further dispute as the concept and mechanism of *EOT* claim evaluation is not clearly identified in the *CTC* and thus it will be depending mainly on the expert report. This problem becomes more visible when dealing with other *EOT* issues such as the most suitable impact analysis method, total float ownership or concurrent delay. Therefore, construction professionals usually resort to using standard form of contracts such as *FIDIC* to overcome these shortcomings. Even though the *EOT* procedure is more elaborated in the *FIDIC 1999 red book* in which it provides a better *EOT* procedure than when relying on simply drafted *bespoke* contract, it was concluded in the dissertation that similar issues such as impact analysis method, total float ownership and concurrent delay are still be disputed under the this standard form of contract. The study then evaluated the same procedure under *FIDIC 2017 red book* to confirm whether it is a better alternative than the previous version. It was concluded that in the new *FIDIC* edition, issues of impact analysis method and total float ownership were dealt with more clearly than the previous version. The same was concluded for the case of concurrency expect that (1) there is an apparent conflict between Sub-Clause 8.5 and Sub-Clause 17.2, and (2) the construction professionals participated in the study survey were not in agreement with the method proposed in Sub-Clause 8.5. The participants in the survey were also in favor of the new agreement procedure prior to make any determination as proposed by *FIDIC* new edition. Accordingly, the study concluded that though the *FIDIC 2017 red book* seems to be providing a better *EOT procedure*, a precaution must be taken when drafting the particular conditions in regards to the concurrent delay and impact analysis method. In addition, particular conditions should not be drafted in a way that might appear to be in conflict to the UAE *CTC*, as in the case of adhesion clauses, given the fact that the judge has the authority of nullifying it if the dispute was not resolved amicably.

الخلاصة

توصلت العديد من الدراسات أن المطالبات التمديد الزمنية لمدة المشروع هي من أكثر الامور الخلافية في مشاريع الإنشاءات وذلك يمكن أن يكون بسبب عدم وجود أو سوء فهم أو سوء تطبيق مواد عقد مناسبة ومتعلقة بالمطالبات التمديد الزمنية. في حالة تصعيد الخلاف وأخذ المسار القضائي، فإن قانون المعاملات المدنية لدولة الإمارات العربية المتحدة يكون الإطار الذي يتم بموجبه الفصل في هذه المنازعات. الإعتماد على هذا القانون قد يتسبب بدوره بنزاعات أخرى حيث أنه وبالرغم من الإشارة إليها فإن آلية التمديد الزمني في قانون التعامل المدني ليست بالوضوح الكافي ليتم البت في النزاعات بشكل فوري وعليه فإن القاضي يعتمد بشكل رئيسي على تقرير الخبير للبت في هذه النزاعات. هذه المشكلة تظهر بشكل أوضح عند التعامل مع قضايا التمديد الزمني ذات الوضع من مثل آلية تحديد أثر التأخير على المشروع، أو الطرف الذي من حقه المطالبة المسموحة لتأخير النشاط عن موعده المخطط، أو آلية الحكم في حالة التأخيرات المتزامنة. لغرض تخطي هذا القصور المتعلقة بالمطالبات الزمنية، فإن معظم المشاريع الإنشائية تلجأ إلى نماذج عقود معيارية من مثل عقود الفيديك. بالرغم من كون هذه الآلية أكثر وضوحاً في عقود الفيديك 1999 – الكتاب الأحمر وعليه تعد مرجعية أفضل من العقود المصاغة، فإنه وبناء على الإستبيان الذي تم إجراؤه في هذه الرسالة، قد تم التوصل إلى أن عقود الفيديك تعاني من مشاكل مشابهة للمشاكل التي يتم مواجهتها في حالة العقود المصاغة من مثل تحديد أثر التأخير على المشروع، أو الطرف الذي من حقه المطالبة المسموحة لتأخير النشاط عن موعده المخطط، أو آلية الحكم في حالة التأخيرات المتزامنة. ولهذا فإن هذه الدراسة قد قامت أيضاً بتقييم نفس الآلية حسب عقود الفيديك 2017 – الكتاب الأحمر للتأكد من أن الإصدار الحديث يقدم حلاً أفضل من سابقه. توصلت هذه الدراسة بأن عقود الفيديك 2017 – الكتاب الأحمر قد تعاملت مع آلية تحديد أثر التأخير على المشروع، أو الطرف الذي من حقه المطالبة المسموحة لتأخير النشاط عن موعده المخطط بشكل أوضح من الإصدار السابقة. توصلت هذه الدراسة أيضاً إلى استنتاج مشابه في حالة التأخيرات المتزامنة باستثناء: (1) وجود نوع من احتمالية التضارب بين المادة رقم 8.5 والمادة رقم 17.2 من هذه العقود، (2) لم يتبنى الخبراء المشاركين في الإستبيان نفس الموقف الموضح في المادة رقم 8.5. بالإضافة لذلك فإن هذه الدراسة قد وجدت بأن الآلية الجديدة للوصول إلى اتفاق بين أطراف العقد قبل البت في المطالبة الزمنية لاقت استحسان معظم خبراء الإنشاءات المشاركين في الإستبيان. وبناء عليه وبالرغم من أن عقود الفيديك 2017 تبدو أفضل بالتعامل مع المطالبات الزمنية، فإن هذه الدراسة توصي بإعادة اهتمام أكبر لحالة التأخيرات المتزامنة وآلية تحديد أثر التأخير عند صياغة الشروط الخاصة من العقد. هذه الدراسة توصي أيضاً بعدم صياغة الشروط الخاصة للعقد بطريقة قد لا تتوافق مع قانون المعاملات المدنية لدولة الإمارات العربية المتحدة كما هو الحال في شروط الإذعان حيث أن القاضي له الصلاحية القانونية لإبطال أثر هذه الشروط إذا لم يتم حل الخلاف بشكل ودي.

DEDICATION

This work is dedicated to my Parents (Nahed & Mustafa), my Beloved Wife Mais Al Sultan, and my little angel and daughter Layan Bdaiwi.

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Table of Contents

DECLARATION

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ABSTRACT

DEDICATION

ACKNOWLEDGEMENT

List of Tables	IV
List of Figures.....	IV
List of Abbreviations	V
List of UAE Articles of Law.....	V
List of UAE Cases	VI
List of Common Law Cases.....	VI
Chapter One	1
1. INTRODUCTION.....	1
1.1 Background.....	1
1.2 Problem Statement.....	2
1.3 Research Questions	3
1.4 Aims & Objectives.....	4
1.5 Dissertation Significance	5
1.6 Research Method.....	5
1.7 Dissertation Outline	6
Chapter Two.....	8
2. DELAY IN CONSTRUCTION - LITERATURE REVIEW	8
2.1 Background.....	8
2.2 Extension of Time Under The English Law.....	9
2.2.1 Completion of Work.....	9
2.2.2 Contractual Completion Date	9
2.2.3 The Prevention Principle	10
2.3 Extension of Time Under UAE Civil Law.....	10
2.4 Identification of Construction Delay	11
2.4.1 Employer Delays.....	12
2.4.2 Contractor Delay	13
2.4.3 Third Party or Force Majeure Delay.....	14

2.5 Classification of Construction Delays	15
2.5.1 Entitlement Based Classification	15
2.5.2 Risk Allocation Based Classification	16
2.6 Delay Impact Analysis	17
2.6.1 Impacted As Planned Analysis	17
2.6.2 Time Impact Analysis (TIA)	18
2.6.3 Window Analysis	19
2.6.4 Collapsed As Built Analysis	19
2.7 Issues of Special Considerations	20
2.7.1 Total Float Ownership	20
2.7.2 Concurrency	21
Chapter Three	25
3. EOT PROCEDURE IN FIDIC	25
3.1 Background	25
3.2 EOT in FIDIC 1999 Red Book	26
3.2.1 Delayed Drawings or Instructions	27
3.2.2 Site Possession	27
3.2.3 Unforeseen Ground or Physical Conditions	27
3.2.4 Tests	27
3.2.5 Variations	28
3.2.6 Suspension of Work	28
3.2.7 Force Majeure or Third Parties	29
3.2.8 Issues of Special Considerations	30
3.3 EOT in FIDIC 2017 Red Book	31
3.3.1 New Claim Substantiation Procedure	32
3.3.2 New Claim Evaluation Procedure	33
3.3.3 Amendments on FIDIC 1999 EOT Provisions	34
3.3.4 Issues of Special Considerations	35
Chapter Four	37
4. RESEARCH METHODOLOGY	37
4.1 Design of the Survey	37
4.2 Selection of Survey Participants	38
4.3 Data Collection & Analysis Method	40

Chapter Five	42
5. DATA ANALYSIS & DISCUSSION	42
5.1 Overview	42
5.2 EOT Disputes	42
5.2.1 Main Causes of EOT Disputes	42
5.2.2 Total Float Ownership	43
5.2.3 Impact Analysis Method	44
5.2.4 Concurrency	45
5.3 Changes in FIDIC 2017 Red Book EOT Procedures	46
5.3.1 Introducing the SCL Protocol or ACEI RP 29R-03	47
5.3.2 Time-framed Agreement	47
5.3.3 Other Factors of EOT Disputes	48
5.4 Discussion of Results	49
Chapter Six	52
6. CONCLUSIONS & RECOMMENDATIONS	52
6.1 Conclusions	52
6.1.1 UAE Law and EOT	52
6.1.2 EOT Under FIDIC Red Books	53
6.2 Recommendations	54
Chapter Seven	56
7. BIBLIOGRAPHY	56

List of Tables

Table 1: Summary of EOT Entitlement-Based Classification	17
Table 2 FIDIC 1999 Red Book EOT Sub-Clauses	29
Table 3: Comparison of FIDIC 2017 & FIDIC 1999 Red Book	34
Table 4: Summary of Other Factors of EOT Disputes	49
Table 5: Orders of Respondents Choices for Main Factor of EOT Disputes - Survey Question 05..	49

List of Figures

Figure 1: Respondents Age Group	39
Figure 2: Respondents Years of Experience.....	39
Figure 3: Respondents Educational Background	40
Figure 4: Respondent's Field of Expertise	40
Figure 5: Main Causes of EOT Disputes	43
Figure 6: Respondents' View on Total Float Ownership	44
Figure 7: Respondents' View on Most Agreed Delay Analysis Method.....	45
Figure 8: Respondents' Recommendation on Most Agreed Delay Analysis Method	45
Figure 9: Respondent's View on Contractor's Entitlement in Case of Concurrency	46
Figure 10: Respondent's View on Introducing SCL Protocol or ACEI RP 29R-03	47
Figure 11: Respondents View on Having Timeframe for Agreement Prior to Determination...	48

List of Abbreviations

Abbreviation	Stand For
BUiD	British University in Dubai
CPM	Critical Path Method
CTC	UAE Federal Law No. 05 in 1985 of Civil Transaction
EOT	Extension of Time
FIDIC	Federation Internationale des Ingenieurs Conseils
ICE & ICC	Institute of Civil Engineers Conditions of Contract & Infrastructure Conditions of Contracts
JCT	Joint Contract Tribunal
LD	Liquidated Damages
NOD	Notice of Dissatisfaction
UAE	United Arab Emirates
RP 29R-03	AACEI Recommended Practice No. 29R - 03 for Forensic Schedule Analysis
SCL	Society of Construction Law Delay & Disruption Protocol
TFM	Total Float Management
TIA	Time Impact Analysis

List of UAE Articles of Law

Ministry of Justice Explanatory Memorandum for Article 290 & 291 of UAE Civil Transaction Code

UAE Civil Transaction Code – Law 05 of December 1985 – Article 247

UAE Civil Transaction Code – Law 05 of December 1985 – Article 248

UAE Civil Transaction Code – Law 05 of December 1985 – Article 249

UAE Civil Transaction Code – Law 05 of December 1985 – Article 287

UAE Civil Transaction Code – Law 05 of December 1985 – Article 290

UAE Civil Transaction Code – Law 05 of December 1985 – Article 291

UAE Civil Transaction Code – Law 05 of December 1985 – Article 390

UAE Civil Transaction Code – Law 05 of December 1985 – Article 414

UAE Civil Transaction Code – Law 05 of December 1985 – Article 472

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Alfred McApline v Tilebox [2005] B.L.R. 271

Balfour Beatty v Chestermount [1993] 62 BLR 1

Boskalis Westminster Construction Ltd v. Liverpool City [1983] 24 BLR 83

City Inn Limited v Shepherd Construction Limited (2006) CSOH 94

Henry Boot Construction (UK) Ltd v. Malmasion Hotel (Manchester) Ltd (1990) 70 Con LR 32.

Henry Boot Construction Ltd v Central Lancashire New Town Development Corporation [1981] 15 BLR 1

Hoening v Isaacs [1952] 2 All E.R. 176

Holme v Guppy (1838) 150 E.R.

Humber Oil Trustees Ltd v General Works (Stevin) Ltd [1992] 59 BLR 1

Jerram v Fenice [2011] BLR 644

Liberty Mercian v Dean & Dyball Construction [2009] B.L.R. 29.

Multiplex Constructions (UK) Ltd v Honeywell Control Systems Ltd (No. 2) [2007] Adj.L.R. 03/06

Peak v McKinney (1970) 69 L.G.R. 1; 1 B.L.R. 111.

Perini Pacific Ltd v Greater Vancouver Sewerage and Drainage District [1967] S.C.R. 189

Rickards (Charles) Ltd v Oppenheim [1950] 1 KB 616 (CA)

Smales v Lea [2011] EWCA Civ 1325.

Walter Lilly v Giles MacKay and DMW Developments [2012] EWHC 1773 (TCC) BLR 503

Chapter One

1. INTRODUCTION

1.1 Background

For the past decade and a half, the name of United Arab Emirates (*hereafter UAE*) has been associated with the vibrant construction industry and the delivery of several iconic construction projects as in the case of the construction of the world tallest building Burj Khalifa or the construction of Louvre Abu Dhabi Museum. It was reported by BNC network that by the end of September 2017, there were over 11,636 active construction projects in UAE with a total estimated value of AED 2,956 billion (\$805 billion) with Dubai and Abu Dhabi leading these numbers¹. This significant number and value of construction projects will always come along with an equivalently significant numbers of disputes between the contracting parties that the UAE Federal Law No. 05 of 1985 - The Civil Transaction (*hereafter CTC*) might be found insufficient to provide a solid resolution given the limitation in the number of construction related article in the code (*the Muqawala chapter*)². Accordingly, if the contracting parties decided to use a *bespoke* contract that is not well-detailed and properly drafted, chances of higher disputes and loss of profits for one or both contract parties will definitely increase. As a result, the contracting parties started adopting standard forms of contracts as a replacement of *bespoke* contracts especially for mid-size or mega projects.

Different types of standard form of contracts have been developed worldwide in order to regulate construction projects' contractual relationship. Most of the standard forms of contracts were aiming at providing a more balanced risk allocation among the contract parties in comparison to bespoke contracts. The construction sector in UAE is widely adopted the use of the Federation Internationale des Ingenieurs Conseils (*hereafter FIDIC*) as a standard form of contract in most of the mega or even mid-size construction projects³. The first suit of *FIDIC* contracts was released in 1987 and the second in 1999. While both are being used in the construction projects in UAE, it is clearly noticed that the employers and contractors are trending toward the use of *FIDIC* 1999 over

¹ Nelson Williams, 'Avoiding the Same Pitfalls – 2017 Middle East Construction Disputes Report' [2017] Arcadis LLP <https://www.arcadis.com/media/2/9/C/%7B29C07234-07A5-4D2F-B7EE-3ED83B405CB%7D2017%20Construction%20Dispute%20ME_WEB.pdf>

² UAE Civil Transaction Code – Law 05 of December 1985 – Article 872 to 896 (*Muqawala Chapter*)

³ Amir Ghaffari, 'FIDIC Red Book 2017: Top 7 Changes'. [Feb 2018] (1) Vinson & Elkins LLP Publication.

a diminishing use of FIDIC 1987. In December 2017 FIDIC has published a second edition of the standard form of contract and considered as an update of the FIDIC 1999 as it is following almost a similar structure. Being the majority of construction projects of the design-bid-build type, it can be immediately noticed that the *FIDIC red book* is the most commonly used among all other suits of *FIDIC* standard forms and consequently it will be the main focus of this dissertation.

In spite of the use of *FIDIC* standard forms to draft construction contracts, disputes were still being observed with greater number being reported in the past two years⁴. One of the main reasons for construction disputes as reported by Arcadis Construction Disputes Report 2017 was related to construction claims, the contract parties' lack of understanding of their contractual obligations and rights and the imbalanced risk allocation in the contract⁵. As a result, contractual entitlements such as the Extension of Time (*hereafter EOT*) will be the subject of disputes. Therefore, this dissertation will be highlighting the methodology by which the recently released *FIDIC 2017 red book* is expected to operate in respect of *EOT* entitlement under UAE law, compare this methodology by the one adopted in *FIDIC 1999 red book*, investigate the suitability of the *EOT* procedure under *FIDIC 2017 red book* if adopted as standard form of contract, and finally conclude with recommendations to overcome any expected shortcoming or misuse of *EOT* contractual entitlement procedure.

1.2 Problem Statement

Even though it might be perceived as a systematic and dispute-free process by some, researches show that *EOT* claims are ranked as one of the highest causes of disputes in the Construction Industry⁶. In particular, several studies found that the source of *EOT* dispute was attributed to such as analysis and eligibility of concurrency, total float ownership, impact analysis method, and establishment of *EOT* contractual ground⁷. Such disputes are more observed in UAE construction projects since terms such as "Extension of Time", "Concurrent Delay", "Time at Large" are not

⁴ Nelson Williams, 'Avoiding the Same Pitfalls – 2017 Middle East Construction Disputes Report' [2017] Arcadis LLP <https://www.arcadis.com/media/2/9/C/%7B29C07234-07A5-4D2F-B7EE-3ED83B405CB%7D2017%20Construction%20Dispute%20ME_WEB.pdf>

⁵ Nelson Williams, 'Avoiding the Same Pitfalls – 2017 Middle East Construction Disputes Report' [2017] Arcadis LLP <https://www.arcadis.com/media/2/9/C/%7B29C07234-07A5-4D2F-B7EE-3ED83B405CB%7D2017%20Construction%20Dispute%20ME_WEB.pdf>

⁶ N.M. Yusuwan, & H. Adnan, 'Issues Associated with EOT in Malaysian Construction Industry'. (2013). 9. P.T S.D. 4

⁷ N.M. Yusuwan, & H. Adnan, 'Issues Associated with EOT in Malaysian Construction Industry'. (2013). 9. P.T S.D. 6

explicitly expressed in the *CTC*⁸. The use of *FIDIC 1999 red book* to supplement the *CTC* and cover this area of practice has not always found to be a satisfactory alternative and it was a subject of criticism by number of professionals due to the following:

- a) *FIDIC 1999 red book* does not indicate any frame of reference for evaluation of Extension of Time procedure as claimed by the contractor⁹.
- b) *FIDIC 1999 red book* provides what would be regarded as a general definition when it comes to the submission requirements of Extension of Time claims¹⁰
- c) The case of concurrent delay is not highlighted under *FIDIC 1999* sub-clause 8.4¹¹
- d) Though it is requiring the Engineer to make a fair determination under sub-clause 3.5 of *FIDIC 1999 red book*, several studies find it unreasonable to assume the complete Engineer impartiality that is required to make fair determinations given the fact that the Engineer is an employee of the Employer and not a party to the contract¹².

As a result, the new *FIDIC 2017 suite* was released with a promise of having a more balanced risk allocation and a better project management role that includes much reasonable contractual mechanism such as the *EOT evaluations and entitlement* procedure. The main objective of these amendments is to have lesser project disputes and consequently higher chances of project success¹³. Therefore, this research intends to review the amendments introduced to the *EOT* procedure in *FIDIC 2017 red book* and whether these amendments provides a better standard form of contracts by overcoming the stated criticisms on *FIDIC 1999 red book*. Moreover, the research will look into *EOT* entitlement under UAE law and how will the *FIDIC 2017 red book* be different in compensating the lack of *EOT* entitlement provision in the *CTC* than the *FIDIC 1999 red book*.

1.3 Research Questions

The research will be attempting to comprehensively review and find an answer to the following questions:

⁸ Dean O'Leary, 'Dealing with Concurrency in Construction Delay Claims'. [April 2014] Al Tamimi & Co. Publication <https://www.tamimi.com/law-update-articles/dealing-with-concurrency-in-construction-delay-claims/#_ftn5>

⁹ *FIDIC 1999 Red Book*, Sub-Clause 8.4 [Extension of Time for Completion] & Sub-Clause 3.5 [Determinations]

¹⁰ *FIDIC 1999 Red Book*, Sub-Clause 20.1 [Contractor's Claim]

¹¹ *FIDIC 1999 Red Book*, Sub-Clause 8.4 [Extension of Time for Completion] & Sub-Clause 3.5 [Determinations]

¹² I. Akulenska, 'The User's Perceptions on the Impartiality of the Engineer under the *FIDIC Red Book*'. [2013]. BUiD Dissertation.

¹³ R Scott, K. Swart & D. Brown, 'FIDIC Contracts'. [Mar 2017] Clyde & Co LLP Publications.

1. How would the UAE *CTC* deal with *EOT* entitlement in the case of the use bespoke contracts that do not properly address how to deal with *EOT* claims?
2. In what way did the *FIDIC 1999* red book supplemented of proper *EOT* provisions?
3. What are the limitations of adopting *FIDIC 1999* red book as a standard form of contract in *EOT* evaluation and entitlement?
4. What are the main *EOT* procedure modifications in the recently released *FIDIC 2017* red book? What will be impact of such modifications in reducing the chances of construction project disputes and enhancing the opportunities of project success?
5. To what extent the *EOT* procedures in *FIDIC 2017* red book is in conformity with UAE *CTC*? In this context the research will also investigate in what way would *FIDIC 2017* be supplementing *CTC* more than the *FIDIC 1999* red book?
6. Finally, the research will highlight what would be the remaining limitations that *FIDIC 2017* amended *EOT* procedure still has not resolved and what are recommendations to deal with the remaining limitations?

1.4 Aims & Objectives

The main objective of this study is to draw a conclusion about the perceived benefits (if any) from using the *EOT* claim procedure provided in recently released *FIDIC 2017 red book* for construction projects in UAE. This objective will be achieved by reviewing three standard cases which are claiming an *EOT* when no standard form of contract is being used (i.e. *bespoke* contract), when using *FIDIC 1999 red book*, and when using *FIDIC 2017 red book*. This study will be come along with construction professional feedback that will be used to support the analysis, conclusions and recommendations to be made.

In view of above, this study aims to achieve the particular objective stated hereunder:

- 1) Examine the sufficiency of the *CTC* to resolve *EOT* claims and dispute, and subsequently confirm the need to use standard form of contracts if bespoke or *CTC* were found insufficient.
- 2) Analyze the procedure and verify the comprehensiveness (if found to be) of *EOT* claims under *FIDIC 1999 red book*
- 3) Analyze the procedure and verify the improvements (if any is found) of *EOT* claims under *FIDIC 2017 red book*.
- 4) Propose set of recommendations for the improvement of the *entire EOT* claim procedure under *FIDIC* red book.

1.5 Dissertation Significance

The importance of this dissertation comes from the fact that it will be offering the reader a comprehensive understanding of main issues encountered when handling *EOT* claims in UAE. It will be shedding a light on the areas of *EOT* assessment by which the UAE *CTC* is found to be falling short and in return how the commonly used *FIDIC 1999 red book* is improving such shortcoming (if found to be so). This dissertation gains a further special importance since it will be also comparing the *EOT* procedure directed in *FIDIC 1999 red book* to the ones provided in *FIDIC 2017 red book*, which is something that is yet not been sufficiently attempted in research due to the recency of *FIDIC 2017* release. In line with the three main areas of the research along with the professional feedback collected throughout the study, the dissertation will be concluded by providing the most suitable recommendations to construction professionals, whether the ones using a bespoke contract or standard form, and/or legislative bodies in UAE in order to improve the *EOT* process and avoid any potential of dispute pertaining to *EOT* entitlement.

1.6 Research Method

The research method will be adopting multiple approaches in order to reach to final conclusions and pursued set of recommendations, including the doctrinal research and quantitative analysis. The doctrinal research requires a review and analysis all types of legal concepts found in the literature including legal cases, rules and statutes¹⁴, whereas the quantitative analysis requires the collection of related expert opinions in regards to the current law provisions as well as the analysis of such collective opinion¹⁵. While the research will be discussing the *EOT* procedure in general, a special focus will be placed on areas of higher potential of disputes as shown in other studies such as total float ownership and concurrent delay¹⁶. Therefore, the dissertation will start by providing a literature review of how *EOT* claims are dealt with under English and UAE law. This will also include a further review and comparison of the case laws findings under both legal jurisdictions. The reason for choosing the English law as a base of comparison is due to the following reasons:

¹⁴ T Hutchinson, & N Duncan, 'Defining & Describing What We Do: Doctrinal Legal Research'. (2012). 17(1). D.L.R. 84.

¹⁵ Jean Rhodes, 'On Methods: What's the Difference between Qualitative & Quantitative Approaches?' [October 2014] The Chronicle of Evidence-Based Monitoring Publication < <https://www.evidencebasedmentoring.org/on-methods-whats-the-difference-between-qualitative-and-quantitative-approaches/>>

¹⁶ N.M. Yusuwan, & H. Adnan, 'Issues Associated with EOT in Malaysian Construction Industry'. (2013). 9. P.T.S.D. 6

1. The English law is relatively more established with *EOT* the longer history and higher numbers of case-laws
2. The literature is more diversified with *EOT* detailed discussions, studies and best practices. This includes higher number of proposed solutions for *EOT* claim related issues.

Performing the review for UAE case-laws was the main obstacle and to a certain extent the limitation of this part of the research given the fact that UAE court cases are not easily accessible or obtained. Following this comparison, the dissertation will be investigating the method of *EOT* claims adopted by *FIDIC 1999* & *FIDIC 2017 red book*. This will include reviewing the *FIDIC EOT* claims contractual justification, substantiation submission, and determinations procedure proposed by both standard form of contracts. The limitation of this part of the research was due to the recency of *FIDIC 2017 red book* release and consequently the inadequate number study in the literature pertaining to the same topic. After such comprehensive examinations, the research will be seeking to obtain the feedback from a carefully selected set of construction professionals' with related *EOT* experience through a well-designed questionnaire as further explained in the Methodology section. The main limitation in this part of the research is the non-availability of responses from Employer side in the selected sample. Based on all, the dissertation will be concluding the study by providing the reader with the main *EOT* dispute-related issues as well as the recommended resolution for critical issues of *EOT* claims.

1.7 Dissertation Outline

The dissertation starts by chapter I which is an introductory chapter giving the reader an overview about the issue of *EOT*, what are the main problems associated with that particular issue, and subsequently what the dissertation specific objective will be and the proposed methodology for achieving such objective. The second chapter in the dissertation is a literature review chapter. An in-depth review of literature relating to key definitions, method of analysis as well as English and UAE case-laws dealing with *EOTs* claims and entitlements. Based on the literature review carried out in chapter 2, the *EOT* procedures in both *FIDIC 1999* & *2017 red book* were reviewed and compared in chapter 03. After establishing this comprehensive understanding of *EOT* procedure in general practice as well as the practice mandated by *FIDIC 1999* & *2017 red book*, the dissertation will be moving on to provide an insight from construction professionals on the issues discussed in chapter 1 to chapter 3 and how such insight will be utilized in order to improve the

current practice from a contractual practice or a legislative practice (if found necessary). Chapter 4 will be laying down the methodology by which the construction professional opinion will be collected and analyzed. Chapter 5 will be going through the results obtained from the survey, qualitatively and in some cases quantitatively analyzing the results of the survey, reflecting the analysis on the earlier *EOT* review made in chapter 02 to 03 for further discussion and ultimately use this discussion to draw proper conclusions and recommendations in chapter 06 as the last chapter of the dissertation.

Chapter Two

2. DELAY IN CONSTRUCTION - LITERATURE REVIEW

2.1 Background

The success of any construction project will be measured by the degree of which the project is meeting its triple constraints of time, cost and scope¹⁷. In order to improve the chances of this success, a baseline programme should be well established and coordinated among the different construction trades at the earliest stage of the project. The most widely used method in the construction industry in order to achieve this task is Critical Path Method (*hereafter CPM*). The *CPM* method will ultimately provide the sequence, the planned dates, and the duration required to complete each of the project activities as well as the programme “flexibility” in changing any of the former details while maintaining the main programme attributes of project contractual start and completion date. The programme flexibility in increasing its activity duration while maintaining its contractual completion date is referred to as “total float”, and any activity produced by the *CPM* having a total float equivalent to zero is marked as “Critical” and hence the name of this method¹⁸. The *CPM* will be the main tool to be used for the analysis discussed in the later sections. In order to provide a basis of discussion for the successor chapters, the following sections in this chapter will be exploring the followings:

- ❖ Extension of Time concept under The English (Common) Law and UAE (Civil) Law
- ❖ Identification & Classifications of construction delays.
 - Entitlement Based Classification
 - Risk Allocation Based Classification
- ❖ A methodology for assessing the delay event in respect to their:
 - Classifications of Delays
 - Impact Analysis techniques
- ❖ Issues of Special Considerations for delay analysis such as:
 - Ownership of Total Float
 - Concurrency
 - UAE Law on Concurrent Delay

¹⁷ Azadmanesh Vahid & Others, *Project Management Body of Knowledge*. (6th Ed., PMI, USA, 2017) 10

¹⁸ Keane P.J. & Calteka A.F. *Delay Analysis in Construction Contracts*. (1st Ed., Backwell Publishing Ltd., UK, 2008) 268

2.2 Extension of Time Under The English Law

2.2.1 Completion of Work

In principle, any contract exists to be a “full contract” which means that all work stated as part of the contract should be completed and handed over to the other party of the contract before the contractual completion date¹⁹. However, the common law finds such condition for construction contract to be imposing a “harsh position” on the contracting parties and as a result introduced the concept of substantial completion²⁰. This concept was reflected clearly in the conditions of several standard forms of contracts such as the expression of “practical completion” in the JCT contracts²¹ or “substantial completion” in the ICC contracts²². *FIDIC 1999 red book* was an exception for such rule as it obligates the contractor to complete the entire scope of work, including the completion and passing of the test on completion with some indirect indication of the “substantial completion” concept under Sub-Clause 9.1 & 9.4²³. It provides that the project taking over certificate should be granted when the work is completed and the test is passed, while the Engineer has the right to reject the test on completion if it found to be depriving “the employer of substantially the whole benefit of the Works or Section”²⁴.

2.2.2 Contractual Completion Date

The common law allows the contract not to have a clearly stated completion date. In such a case, the completion date will be the one by which the work can be carried out in a reasonable duration²⁵. However, in construction contracts, the adherence of a pre-defined completion date is of special importance and the time is “of the essence” as both contract parties will be might suffer major economic losses if not met and the time was set at large²⁶. Accordingly, the law usually allows the employer to recover such damages to the extent allowed by Liquidated Damages clauses (*hereafter LD*). The main advantage of *LDs* for the employer is that they could be recovered without the need to prove the actual losses and being challenged in court by contractor²⁷. By the same principle, if the contractor stayed on site for longer period than contractually agreed for reasons attributed to

¹⁹ McKendrick EWAN. *Contract Law*. (10th Ed., Palgrave Macmillan Law Masters, 2013) 2

²⁰ *Hoening v Isaacs* [1952] 2 All E.R. 176 and *Smales v Lea* [2011] EWCA Civ 1325.

²¹ JCT – Sub-Clause 2.30

²² ICE/ICC - Sub-Clause 48(1)

²³ Huges W., Champion R., & Murdoch J. *Construction Contracts: Law & Management*. (5th Ed., Routledge, USA, 15) 213

²⁴ FIDIC 1999 red book – Sub-Clause 9.4 (b) [Failure to Pass Test on Completion].

²⁵ Huges W., Champion R., & Murdoch J. *Construction Contracts: Law & Management*. (5th Ed., Routledge, USA, 15) 214

²⁶ Uff John. *Construction Law*. (11th Ed., Thomson Reuters, UK, 2013) 309

²⁷ *Alfred McApline v Tilebox* [2005] B.L.R. 271 and *Liberty Mercian v Dean & Dyball Construction* [2009] B.L.R. 29.

Employer performance or act of prevention, then he might be entitled for compensation in damages resulted from such prolonged retention in the project, or what is known as “prolongation cost”. In this context, the importance of *EOT* procedures and contractual provisions would be its providing of basis to claim prolongation cost in some cases, and applying or waiving the application of LDs in other cases as found in *Peak v McKinney*²⁸. The common law may provide another way of waiving the LDs on the contractor if it was clearly speculated or implied by the Employer that such LDs will not be applied should the contractor continue performing the work as required, which is what is referred to as a *estoppel*²⁹.

2.2.3 The Prevention Principle

The prevention principle is a concept developed under the English Law which basically mandates that no party in the contract should be benefiting from the other party breach of contract if the former has not allowed the later from performing its contractual obligation³⁰. The prevention principle has been long established under common law, dating back to the 19th as in the case of *Holme v. Guppy*³¹ and the 20th century as in the case of *Perini Pacific Ltd v. Greater Vancouver Sewerage and Drainage District*³². The significance of this principle is that it has numerous amount of case law and practices given its long history of application, in addition to solid ground of contractual and legal interpretation of controversial construction issues such as the case of concurrency. In all cases and based on the prevention principle, extension for time provisions were introduced to the construction contract in order not to make any parties liable for the act of prevent of the other party³³.

2.3 Extension of Time Under UAE Civil Law

All civil transactions in UAE are governed and regulated by Law No. 5 of December 1985 known as UAE *CTC*. Being a civil transaction, construction contracts are governed by a special chapter in the *CTC* known as the *Muqawala* chapter³⁴. Article 875 of the *CTC* clearly indicates that time

²⁸ *Peak v McKinney* (1970) 69 L.G.R. 1;1 B.L.R. 111.

²⁹ *Rickards (Charles) Ltd v Oppenheim* [1950] 1 KB 616 (CA)

³⁰ Eggleston Brian. *Liquidated Damages and EOT In Construction Contracts*. (13th Ed., Blackwell, UK, 2009) 144

³¹ *Holme v Guppy* (1838) 150 E.R

³² *Perini Pacific Ltd v. Greater Vancouver Sewerage and Drainage District* [1967] S.C.R. 189

³³ P. Godwin, D. Roughton, D. Gilmore and E. Kratochvilova. ‘The prevention principle, time at large and extension of time clauses’. [21 Aug 2009] (1) Herbert Smith Freehills LLP Publications <<https://www.lexology.com/library/detail.aspx?g=09e90e60-fa47-411b-813d-0e3c6427f836>>

³⁴ UAE Civil Transaction Code – Law 05 of December 1985 – Article 872 to 889.

is of the essence in *Muqawala* contracts as it requires the contract to specifically provide the “period over which it is to be performed and the consideration must be specified”. Hence, there will be also a need for *EOT* provisions under UAE law which the *CTC* does not properly address. Articles such as 247 of the *CTC*³⁵ might be considered as way of addressing the *EOT* issue in which it states:

“In contracts binding upon both parties, if the mutual obligations are due for the performance, each of the parties may refuse to perform his obligation if the other contracting party does not perform that which he is obliged to do”

Article 247 could be projected on the project completion date as contractual binding obligation of the contractor to the employer and thus provide the contractor the ground to refuse meeting such obligation if the Employer was found to be defaulted in adhering to his contractual obligation to contractor. Similarly, article such as but not limited to, 414, 472, 287 and 249 of the *CTC* provides the same basis to establish a delaying event and their impact on the project completion. In *Muqawala* contracts specifically, Article 894 of the *CTC* provide the same basis of *EOT* as it relieves the contractor from *LDs* and provides the ground to claim the prolongation cost to compensate the contractor time-related damages. Article 894 states:

“If the contractor commences to perform the work and then becomes incapable of completing it for a cause in which he played no part, he shall be entitled to the value of the work which he has completed and expenses he has incurred in the performance thereof up to the amount of the benefit the employer has derived therefrom”.

A main element of distinction under UAE *CTC* is that it provides the judge with the power of varying an unfair terms of the contract, whether it is related to performance of work or recovery of damages. For example, article 248 gives the judge the authority to provide a waiver for any unfair contract terms made under adhesion. Likewise, article 390 provides the judge with authority of varying a pre-agreed rate of compensation for damages to match the actual losses.

2.4 Identification of Construction Delay

In the construction industry, the term “delay” is understood as the occurrence of an event that is linked with one or more of the project’s activities causing these activities not to be started or

³⁵ UAE Civil Transaction Code – Law 05 of December 1985 – Article 247

completed as planned in the project baseline programme³⁶. This could be the result of, but limited to, any of reasons mentioned in the following sections.

2.4.1 Employer Delays

In most of the standard forms of contracts and statutory rules, a provision will be found granting the contractor the right for *EOT* as a result of the Employer's related delay. This category will encompass delays related to employer's act or employer representative (i.e. the Engineer) acts, which in return includes but not limited to:

- A. Delaying site possession
- B. Delaying required design information
- C. Major changes (i.e. variations) in the scope of work or earlier identified and agreed upon quantities.
- D. A consequent result of certain instructions that could imply suspension or addition of work
- E. Delay in required Engineer instructions, material selections, nominations of sub-contractors and its relevant work.
- F. Delay in Payments

It should be noted that the above delay events, especially delayed payments, are subject to the contract provisions being used. There are numerous case law indicating the contractor's right for an *EOT* when the above delays have occurred. For example, the contractor's right for an *EOT* due to delayed site possession was clearly established in Lord Justice Salmon's ruling in *Peak v McKinney*³⁷ in which it referred to the act of prevention to provide site possession by the employer found in *Holme v. Guppy*³⁸ and subsequently stated:

"I cannot see how, in the ordinary course, the employer can insist on compliance with a condition if it is partly his own fault that it cannot be fulfilled".

Other more recent cases such as *Multiplex Construction (UK) Ltd v. Honeywell Construction System Ltd*³⁹ also support the prevention principle.

³⁶ Keane P.J. & Calteka A.F. *Delay Analysis in Construction Contracts*. (1st Ed., Backwell Publishing Ltd., UK, 2008) 76

³⁷ *Peak v McKinney* (1970) 69 L.G.R. 1; 1 B.L.R. 111

³⁸ *Holme v Guppy* (1838) 150 E.R

³⁹ *Multiplex Constructions (UK) Ltd v Honeywell Control Systems Ltd (No. 2)* [2007] Adj.L.R. 03/06

By the same token, as per *CTC* article 247 and article 894 gives the contractor the ground to have a waiver of delay penalties or *LDs* in the cases for which he played no part of as evident. *CTC* Articles 887 (2) even gives clearer basis for delay impact analysis due to variation order as it states:

“If any variation or addition is made to the plan with the consent of the employer, the existing agreement with the contractor must be observed in connection with such variation”

Several case laws acknowledged the contractor’s right for an *EOT* as the result of one of the above stated causes such as

- ❖ Abu Dhabi course of Cassation Case 786⁴⁰ in which delayed payment and delayed site possession were the reasons for waiving *LDs* on the sub-contractor in the First Instance Court and the Court of Cassation has not made any revocation on the ruling of the First Instance Court.
- ❖ Supreme Court ruling in case 204 and 211⁴¹ also shows a justification for extending the project duration in the case of non-payment and lack of contract provision.
- ❖ Dubai Court of Cassation Case 213 and 253⁴² in which it was ruled that the contractor is not liable for delay caused by the performance of employer-nominated sub-contractor. It was also ruled in the same case that as per article 390 (2) of the *CTC*, the *LDs* will not be applicable as the claimant was not able to prove any actual losses that were suffered as a result of such delay.

2.4.2 Contractor Delay

The contractor may lose its right to be granted an *EOT* due to many reasons, such as but not limited to⁴³:

- A. Delay caused by contractor’s performance due to lack of required resources or poor project planning.
- B. Delaying required submissions by the contractor
- C. Contractor’s deliberate suspension of work or reduction of the rate of progress
- D. Other causes of delay not clearly stated in the contract provisions or country’s statutory law in which it could be thought of as the contractor’s responsibility.

⁴⁰ Abu Dhabi Course of Cassation – Case 786/2012 Judicial Year 8 – 09th Jan 2014.

⁴¹ Supreme Court – Case 204 and 211 for the Year 2014 – 29th Oct 2014.

⁴² Dubai Court of Cassation – Case 213 and 253 for the Year 2008 – 19th Jan 2009

⁴³ Keane P.J. & Calteka A.F. *Delay Analysis in Construction Contracts*. (1st Ed., Backwell Publishing Ltd., UK, 2008) 76

It should be noted that depending on the type of contract or standard form being adopted and the stated terms for performance and payment, contractor's deliberate suspensions of work as a result of breach of contract, as in the case of non-payment, might be entitling the contractor for an extension of time if it is properly notified⁴⁴.

2.4.3 Third Party or Force Majeure Delay

The delay in site work could be also a result of a third party factor such as but not limited to:

- A. Unforeseeable underground or other physical conditions
- B. Exceptionally and unforecastable extreme weather conditions.
- C. Delay caused by authorities, new regulations or change of governments
- D. Delay due to other factors of civil wars, natural disasters, or strikes.
- E. Unexpected financial hardship.

These are the types of delay that are going beyond the control of the contract parties. Accordingly, courts usually do not find the contractor liable for the delay and subsequently the *LDs* do not apply. Multiple case in the common law were established such as:

- ❖ *Henry Boot v. Central Lancashire Development Corporation* for the case of delay due to authorities required work⁴⁵.
- ❖ *Boskalis Westminster Construction Ltd v. Liverpool City Council* for the case of delay due to acts of strikes and civil commotion⁴⁶.
- ❖ *Humber Oil Trustees Ltd v General Works (Stevin) Ltd* for the case of delay due to “Unforeseen Physical Conditions”⁴⁷.

There are also similar UAE case laws that could be found highlighting the implication of delay resulting from occurrence of similar events to the ones stated under this section such as Supreme Court case 751 in 2016 in which the delay was due to authorities work with no default done by the contractor to prevent such work⁴⁸.

⁴⁴ FIDIC 1999 Red Book: Sub-Clause 16.1 [Contractor's Entitlement to Suspend Work]

⁴⁵ *Henry Boot Construction Ltd V Central Lancashire New Town Development Corporation* [1981] 15 BLR 1

⁴⁶ *Boskalis Westminster Construction Ltd v. Liverpool City* [1983] 24 BLR 83

⁴⁷ *Humber Oil Trustees Ltd v General Works (Stevin) Ltd* [1992] 59 BLR 1

⁴⁸ Supreme Court – Case 751 for the Year 2015 – 26th Oct 2016

2.5 Classification of Construction Delays

There are several standards of best practices that are available and being adopted in the construction industry to guide the process of evaluating the impact of delay event and determine the contractor *EOT* entitlement. The ones that are most widely adopted are the Society of Construction Law (*hereafter SCL*) Delay & Disruption Protocol⁴⁹ and the AACEI Recommended Practice No. 29R - 03 for Forensic Schedule Analysis (*hereafter RP R29-03*)⁵⁰. Accordingly, the following sections will be mostly guided by these two particular standard practices.

2.5.1 Entitlement Based Classification

If the delay event was associated with any critical activity, it will result in not only impacting the activities planned dates but also the entire project completion date in which a dispute may arise about the accountability of such contractual default. Such dispute will not be resolved without proving a relationship between the “cause” of the delay event and the “impact” of the delay event, which is what is defined as “forensic delay analysis” or simply “delay analysis”. , one of the most difficult and in many cases tricky issues that could be encountered while establishing the causation requirements as discussed earlier is to analyze the concurrency of the delay. The exact definition of concurrent delay is a subject of great debate, however, the most commonly accepted definition for concurrent delay event is “the period of the project over-run which is caused by two or more effective causes of delay which are of equal causative potency”⁵¹. This definition encompasses both the concurrent cause and concurrent impact of the events. Taking into consideration all of the previous overview, any delay can be classified⁵²:

1. Excusable and Non-Excusable Delays. Excusable delays are the ones that occurred due to various reasons that are not attributed to the contractor’s performance. In principle, this delay entitles the contractor’s for an *EOT* to the project completion provided they are associated with critical activity.
2. Compensable and Non-Compensable Delays. Compensable delays are the types of delay in which the contractor will be also entitled for a fair compensation as a result of the losses suffered due to the delay event.

⁴⁹ Society of Construction Law Delay & Disruption Protocol – 2nd Edition – Feb 2017.

⁵⁰ AACEI International Recommended Practice No. 29R-03 – Forensic Schedule Analysis – April 25, 2011

⁵¹ John Marrin QC, ‘Concurrent Delay Revisited’. A paper given at a meeting of the SCL in London on 4th December 2012. (Feb 2013) <<https://www.scl.org.uk/papers/concurrent-delay-revisited>>

⁵² Trauner T. *Construction Delays – Understanding Them Clearly*. (2nd Ed., Elsevier Inc., USA, 2009) 25

3. Concurrent and Non-Concurrent (Independent).

2.5.2 Risk Allocation Based Classification

As discussed earlier, there are various events that could initiate a delay in the project. Both *SCL* protocol and *AACEI RP R29-03*, group these events into three main categories accordingly to the accountable contract parties (i.e. according to risk allocation) as follows:

- A. **Employer Risk Event**. These events are the ones that are attributed to Employer's failure to meet the contractual obligation such as the ones stated in section 2.4.1. Both standards agree that for such events and unless otherwise specified in the contract, the contractor might be entitled for an *EOT* provided that this risk event is associated with a critical activity or an activity by which the total float has been exhausted. It should be noted that such entitlement is not always accompanied with cost compensation for the losses suffered from the delay⁵³. In reference to previous classification, these events could be marked as excusable/compensable or excusable/non-compensable.
- B. **Contractor Risk Event**. These events are the ones that are attributed to Contractor's failure to meet the contractual obligation such as the ones stated in section 2.4.2. Both standards agree that for such events, unless otherwise specified in the contract, the contractor will not be entitled for an *EOT* and might be subject of liquidated damages if the risk event is associated with a critical activity or an activity by which the total float has been exhausted causing the project contractual completion date to be shifted. These delay are always non-excusable/non-compensable.
- C. **Force Majeure or "Non-Compensable Employer Risk Event"**. These events, sometimes referred to as neutral event, are the ones that to the occurrence of something or someone who is a third party to the contract such as the ones stated in section 2.4.3. Both standards agree that the Employer will bear risk of prolonged project duration and the contractor will bear the risk of cost compensation which makes them an excusable but non-compensable events. Table 1 summarizes the discussed three scenarios.

⁵³ Article 14 of Society of Construction Law Delay & Disruption Protocol – 2nd Edition – Feb 2017.

Table 1: Summary of EOT Entitlement-Based Classification

Delay Type	Classification	EOT Entitlement	Cost Compensation	Liquidated Damages
Employer Risk Event	2 Excusable/Compensable 3 Excusable/Non-Compensable	Yes	Possible	NA
Contractor Risk	Non-Excusable/Non-Compensable	No	No	Yes
Force Majeure	Excusable/Non-Compensable	Yes	No	No

2.6 Delay Impact Analysis

This section will be discussing selective methods for the analysis of the impact of the delaying events as recommended international best practices such as the *SCL* protocol and *AACEI RP R29-03*. It will be evident the quantified result of the impact will be different from one method to the other⁵⁴. Therefore, in the case of absence of particular contract provision mandating the use of a specific delay analysis method, this area could be of significant potential for *EOT* entitlement dispute between the contract parties as there is no general agreement on the best method of impact analysis⁵⁵. However, both *SCL* protocol and *AACEI RP R29-03* provide guidelines upon which certain method will be recommended to be used over the other. In order to achieve this, both standards classified the impact methods based on timing by which the analysis will be carried into two types. The first is the prospective analysis in which impact of the event is analysis in the expected future context, and the second is the retrospective analysis in which the analysis is more of forensic nature that considers the actual known effect of the impact⁵⁶. All the following processes of delay analysis should be carried out using a scheduling software that utilizes the CPM method discussed earlier.

2.6.1 Impacted As Planned Analysis

This method will involve creating a group of activities that represents the delay event, which is what is referred to in this section and following sections as Schedule Fragnet⁵⁷. The schedule fragnet will be introduced to the baseline programme being linking fragnet with successor baseline activities being impacted by the fragnet. Once the links are established and confirmed to be realistic

⁵⁴ N Braimah, 'Construction Delay Analysis Techniques – A Review of Application Issues'. (Jul 2013). 3. Buildings. 507

⁵⁵ Available at <http://www.cms-lawnow.com/ealerts/2018/01/prospective-vs-retrospective-delay-analysis-new-tcc-commentary> accessed on 07 Jul 2018

⁵⁶ Manoj Bahl, 'Proving Extension of Time Claims' (2016) FTI & ICES. 3

⁵⁷ Timothy Calvey and Others, 'AACEI Recommended Practice No. 52R-06 Time Impact Analysis – As Applied in Construction' (Oct 2006). AACEI. 5

and reasonable, the scheduling software should be run again to recalculate the critical path and the expected impact the delay fragnet have on the completion date⁵⁸. This is thought to be the easiest and the most inexpensive delay analysis method with a major limitation of not considering actual process performed in the project⁵⁹. Having such limitation, this method is not recommended to be utilized for delay analysis unless it is stated in contract provisions or the delay occurred at a very early stage of the project or at the start of each window analysis discussed in the following sections⁶⁰. This method is usually favored by most of the contractors and disputed by other party of the contract (i.e. The Employer or its appointed Engineer) since the impact analysis using this method provides the contractor an extension to completion date regardless of any contractors delay as it does not take account of any of the contemporaneous update of the project progress.

2.6.2 Time Impact Analysis (TIA)

Similar to Impacted as planned method, the *TIA* a prospective method inserts a delay fragnet, link it successor baseline programme activities associated with the delay, and run the baseline programme again to recalculate the critical path and expected impact of the delay on the project contractual completion date. The difference between the *TIA* method and the impacted as planned is that the *TIA* uses the contemporaneous version of the updated programme⁶¹. Hence, this method will not only require the analyst to ensure the baseline activities to be properly linked, realistic and reasonable, but also it will require to verify the update information such as actual start and finish dates as well as percentages of work completed⁶². The *TIA* is considered to be less simple than the previous method gets more complicated as the number of fragents increases. Nevertheless, the revised expected completion date as a result of the impact analysis is considered by most of analysts to be more accurate⁶³. Accordingly, this method is commonly agreed upon as the most suitable retro-respective delay analysis method by most of the contract parties as it will be shown in conducted survey study in the later section. This method is also recommended by the SCL protocol as well as the ACEI Recommended Practice 52R-06 for most of the prospective delay analysis cases.

⁵⁸ Uff John. *Construction Law*. (11th Ed., Thomson Reuters, 2013) 312, 313

⁵⁹ Article 11.6 (a) Society of Construction Law Delay & Disruption Protocol – 2nd Edition – Feb 2017

⁶⁰ R J Long, A Avalon, & R J Rider, 'Long Intl.'s Schedule and Delay Analysis Methodology' (2011) Long intl. 3 5 6

⁶¹ Timothy Calvey and Others, 'ACEI Recommended Practice No. 52R-06 Time Impact Analysis – As Applied in Construction' (Oct 2006). ACEI. 3 5

⁶² Article 11.6 (b) Society of Construction Law Delay & Disruption Protocol – 2nd Edition – Feb 2017

⁶³ Keane P.J. & Calteka A.F. *Delay Analysis in Construction Contracts*. (1st Ed., Backwell Publishing., UK, 2008) 131 132

2.6.3 Window Analysis

This method is alternatively referred to as “time slice analysis”. It is a forensic retrospective method that is carried out by analyzing multiple contemporaneous baseline updates over various time windows (i.e. time slice), typically taken on monthly time interval and covering the duration by which the work was performed⁶⁴. In this case, the schedule that window analysis will be performed on is referred to as the “as-built” schedule⁶⁵. This will allow the analyst to conclude the actual project critical path for each of the windows and consequently guiding the analyst’s investigation of project records to link the events occurred with actual critical path. Accordingly, a more accurate and to a certain extent the exact impact of the delay will be detected⁶⁶. When the actual critical path is compared with the baseline case (or what will be termed as the “as-planned” programme), this method will be referred to as the “As-planned vs. As-Built Window” Analysis⁶⁷. This will allow a more thorough investigation for the critical delay events and the effect of mitigation action, if any, in each of the window. This method of analysis is highly accurate forensic analysis method, yet it might be considered a costly method as it requires significant amount of time and effort to prepare in addition to the fact that it needs proper programme updates during the windows being analyzed which might not be fully available in the project⁶⁸.

2.6.4 Collapsed As Built Analysis

The collapsed as-built is sometimes referred to as the “as-built but for”⁶⁹. It is a retrospective delay analysis method in which it relies on the as-built baseline programme to extract the actual critical path and analyze what could have happened to the actual completion date if the delay events have not occurred in the project⁷⁰. Though this approach is not a prospective delay analysis method, it includes some hypotheses and speculations that need to be tested and verified in the same way the impact of the delay events needs to be verified in other prospective methods⁷¹. This technique,

⁶⁴ Keane P.J. & Calteka A.F. *Delay Analysis in Construction Contracts*. (1st Ed., Backwell., UK, 2008) 116 163 165

⁶⁵ Mubarak Saleh. *Construction Project Scheduling & Control*. (3rd Ed., Wiley Inc., New Jersey USA, 2015) 359

⁶⁶ N Braimah, ‘Construction Delay Analysis Techniques – A Review of Application Issues’. (2013). 3. Buildings. 518-525

⁶⁷ Keane P.J. & Calteka A.F. *Delay Analysis in Construction Contracts*. (1st Ed., Backwell., UK, 2008) 163 165

⁶⁸ Keane P.J. & Calteka A.F. *Delay Analysis in Construction Contracts*. (1st Ed., Backwell, UK, 2008) 160

⁶⁹ Uff John. *Construction Law*. (11th Ed., Thomson Reuters, 2013) 312

⁷⁰ R J Long, A Avalon, & R J Rider, ‘Long Intl.’s Schedule and Delay Analysis Methodology’ (2011) Long intl. 3 5 6

⁷¹ Keane P.J. & Calteka A.F. *Delay Analysis in Construction Contracts*. (1st Ed., Backwell, UK, 2008) 168

though it is considered to be an accurate forensic impact analysis technique, is not very commonly practice in the industry due to several shortcomings such as⁷²:

- 4 It involves a hypotheses on the as-built schedule had the delay event not occurred which might produce a revised as-built schedule that is not reliable or does not represent the real scenario
- 5 Given the fact that it involves making assumptions, this method could be highly subjective and consequently easily manipulated.
- 6 Forming the required hypotheses might not be within the area of expertise of the forensic analyst.

2.7 Issues of Special Considerations

This section will be elaborating on three main issues of special consideration due to the continuous controversy in their regard. The first issue is who can claim the ownership of the activity total float. The second issue will be the issue of concurrency. The third issue will be the issue of programme mitigation and acceleration.

2.7.1 Total Float Ownership

As defined earlier, the total float is the duration that works as a time contingency for which any of the activities in the project programme can be delayed without delaying the contractual completion date of the project⁷³. Accordingly, the total float duration will be providing an indication on the criticality of the activity in which it determines whether the activity is critical or it is becoming critical by exhausting its assigned total float. In case of delay analysis, the delay event might be issued with critical and non-critical activities. While the issue of impact of delay events associated with any critical activity can be determined through one of the relevant delay analysis methods discussed earlier, the issue of impact on non-critical activities is more complicated as some argues that the delay in activities with total float should also justify an *EOT* claim⁷⁴. In this regards, one of the views on total float ownership is considers the use of total float is the right of the contract parties assuming the project risk. Based on this view, in a standard fixed price (i.e. lump-sum) contracts, the party assuming the project risk of time and cost would be the contractor and hence

⁷² N Braimah, 'Construction Delay Analysis Techniques – A Review of Application Issues'. (2013). 3. Buildings. 518-525

⁷³ Azadmanesh Vahid & Others, *Project Management Body of Knowledge*. (6th Ed., PMI, USA, 2017) 725

⁷⁴ K S Al Gahtani, I A Al Sulaihi, & A Iqupal. 'Total Float Management: Computerized Technique For Construction Delay Analysi'. (Feb 2016). NRC. 396

the total float should be the contractor's right. By similar analogy, the total float will be the owner's right in cost-reimbursed contracts⁷⁵. This view has been countered by the Employers argument that such float of the activities has been already considered in the contractor's price and therefore it should be also the Employer right to use the total float. Hence, another well-supported view on the total float ownership considers the allocation of the total float should be provided for the benefit of the entire project rather than a specific party, and consequently it will be allocated on a "first come first served" basis⁷⁶. This view has been updated in several cases such as *Ascon Contracting v Alfred McAlpine*⁷⁷. The study conducted in this dissertation that will be discussed thoroughly in the later sections shows that the majority of the practicing professionals are adopting the later view on the right to use the total float. It should be also noted that the later view (i.e. the first come first serve view) is the one supported by the *SCL protocol*⁷⁸. However, the same study shows that there was considerable division in the practicing professional opinion on the same matter. In view of this controversy of allocating the contract parties' right in the use of total float, it would be highly recommended to state the approach for Total Float Management (*hereafter TFM*) in the project contract provision in order to avoid a potential of *EOT* claim dispute⁷⁹.

2.7.2 Concurrency

The two standards stated earlier, namely the *SCL protocol* and the *AACEI RP 29R-03*, have provided some definition for the case of concurrency. The *SCL protocol* defines concurrency as follows⁸⁰:

"True concurrent delay is the occurrence of two or more delay events at the same time, one an Employer Risk Event and the other a Contractor Risk Event, and the effects of which are felt at the same time. For concurrent delay to exist, each of delays must be an effective cause of Delay to Completion ... Where Contractor Delay to Completion occurs or has an effect concurrently with the Employer Delay to Completion, the Contractor's concurrent delay should not reduce any *EOT* due".

⁷⁵ K S Al Gahtani and S B. Mohan. 'Total Float Management in Delay Analysis'. (Feb 2007) 49/2 Cost Engineering, 33

⁷⁶ Shona Frame. 'Who Owns the Float?'. [Jul 2011] (1) MacRoberts LLP. <<https://www.lexology.com/library/detail.aspx?g=7124d5c1-d8b4-4a49-88ef-db83d41b23e9>>.

⁷⁷ *Ascon Contracting Ltd v Alfred McAlpine Construction Isle of Man Ltd* 66 Con. L.R. 119

⁷⁸ Core Principle 8 & Article 8.5 Society of Construction Law Delay & Disruption Protocol – 2nd Edition – Feb 2017

⁷⁹ K S Al Gahtani and S B. Mohan. 'Total Float Management in Delay Analysis'. (Feb 2007) 49/2 Cost Engineering, 33

⁸⁰ Core Principle 10 & Article 10.3 Society of Construction Law Delay & Disruption Protocol – 2nd Edition – Feb 2017

The *AACEI RP 29R-03* adopts a similar yet more elaborate definition of concurrent delays as it states that the two delay events do not need to occur at the same time but ultimately they will both delay the completion dates⁸¹. However, these are not the only two definitions available for concurrent delay as some standards argue that must be sharing the critical path while others allow for having it on two parallel paths. Moreover, unlike the definitions provided by the *SCL protocol* or *AACEI RP 29R-03*, some of the standard practices finds mandatory to have the start of concurrent delay events to be on the same day⁸². In the case of concurrency, the *EOT* entitlement is a remarkably an argumentative issue in which each party of the contract claims the right of the having the concurrency to its benefit as the other party was not in total compliance with its obligation due to the concurrent delay event.

2.7.2.1 Analysis of Concurrency

In this matter, the *SCL protocol* was found to be taking two different positions. The first position states that in case of concurrency of events one is a Contractor's Risk Event and the other is an Employer Risk Event and the later event has caused a delay in completion, in part or in full, *LDs* will consequently not be applicable on the contractor. The second position the *SCL protocol* is found to be taking in consideration to the "effective cause of delay to completion"⁸³, which is also known as the "dominant cause approach". Under the "effective cause" approach, if the delay to completion has occurred due to Contractor's Risk Event while on the other hand an Employer's Risk Event started after and completed before this event, the Contractor's Risk Event will be the effective cause of delay and subsequently this situation is marked to have no true concurrency which will deprive the contractor's from its *EOT* entitlement⁸⁴. With consideration to the effective cause approach, even when the contractor is in culpable delay, if the Employer instructed a variation after the completion date and the contractor was able to recover its own delay making the variation is the leading event delaying the completion (i.e. the effective cause of delay), the *LDs* will be waived on the contractor and employer will be obligated to grant an *EOT* as in the case of *Balfour Beatty v Chestermount*⁸⁵, *Jerram v Fenice*⁸⁶ or the famous case of *Henry*

⁸¹ K P. Hoshino & Others, 'Recommended Practice No. 29R-03 Forensic Schedule Analysis' (Apr 2011). 2 AACEI. 104

⁸² R J Rider & R J Long, 'Analysis of Concurrent/Pacing Delay' (2017) Long intl. 2

⁸³ Core Principle 10 & Article 10.9 Society of Construction Law Delay & Disruption Protocol – 2nd Edition – Feb 2017

⁸⁴ G M Clas. 'SCL's New Take on the Delay and Disruption Protocol.' [2016] CORBETT & CO Intl' Const. Lawyers.

⁸⁵ *Balfour Beatty v Chestermount* [1993] 62 BLR 1

⁸⁶ *Jerram v Fenice* [2011] BLR 644

Construction v. Malmasion Hotel⁸⁷. Based on the prevention principle discussed earlier, the *SCL protocol* under its article 10.10 recommends the effective cause approach over the first position. It should be noted that the effective cause of delay approach has been criticized by several scholars as it was considered that it may be giving the employer an excessive right to instruct variations during the period by which the contractor is in delay⁸⁸. Another method was found to be also widely adopted in analyzing the entitlement under concurrent delay is the apportionment approach. In this method, the divided (i.e. apportioned) between the parties causing the delay accordingly to the estimate percentage of contribution to the delay and subsequently the *EOT* will be granted equivalent to the apportioned amount of the other party⁸⁹. There is no final position in the English law as to what approach should be used to determine the case of concurrent delay. The apportionment approach has a solid support in the English law as in the case of *City Inn v. Shepherd Construction*⁹⁰, whereas some English case law were found clearly rejecting the apportionment approach and accepting the effective cause of delay approach as in the case of *Walter Lilly v MacKay*⁹¹. The same difference in position was observed in *SCL protocol* and the *AACEI RP*, as the later appears to be supporting the apportionment approach more than the prevention principle⁹².

As highlighted in *Table 1*, in case of having Employer Risk Event, prolongation cost might be applicable. In spite of the fact that most of the US case law were found to be of entitling the contractor with extension of time but no prolongation cost⁹³, the *SCL protocol* under article 14.3 provide a relief for the contractor to claim compensation under the condition that the contractor is able to demonstrate clearly and separately the cost and/or expenses due to Employer Risk Event from the ones due to Contractor Risk Event. In practice, such separation would be difficult to obtain in the case of concurrency and mostly the contractor will be only entitled for the period of concurrency by which the employer's delay exceed the contractor's delay⁹⁴.

⁸⁷ *Henry Boot Construction (UK) Ltd v. Malmasion Hotel (Manchester) Ltd* (1990) 70 Con LR 32.

⁸⁸ Scott Lambert, 'New Guidance on Construction Delays & Disruption'. [Jan 2017] Al Tamimi & Co. Publication

⁸⁹ Damain McNair, 'Concurrent Delay'. [Jan 2016] Report. PWC Publication.

⁹⁰ *City Inn Limited v Shepherd Construction Limited* (2006) CSOH 94

⁹¹ *Walter Lilly v Giles MacKay and DMW Developments* [2012] EWHC 1773 (TCC) BLR 503

⁹² M Stokes, 'Concurrent Delay: A Contractor Get Out of Jail Card or Employer Windfall'. [2016] Navigant Consult. Inc.

⁹³ Keane P.J. & Calteka A.F. *Delay Analysis in Construction Contracts*. (1st Ed., Backwell., UK, 2008) 205

⁹⁴ Core Principle 14 & Article 14.3 Society of Construction Law Delay & Disruption Protocol – 2nd Edition – Feb 2017

2.7.2.2 UAE Law on Concurrent Delay

The lack of clear *CTC* articles in regards to *EOT*s makes the issue of determining concurrency entitled *EOT* and cost compensation is significantly challenging. There are no clear answer for this question, however several statement by published articles of esteemed UAE law firms suggested the determination of the *EOT* entitlement question in case of all type of delay analysis should be based on the *FIDIC* interpretation given the fact that it is most used standard form of contract in the UAE construction industry. Based on the fact that *FIDIC* is from common law origin, the case of concurrency should be interpreted similar to several English case law the granted the contractor an entitlement for an *EOT* in case of concurrent delay⁹⁵. This position was strengthened when the ruling on several UAE cases was found, to a certain extent, to be adopting the effective cause of delay approach to determine *EOT* entitlement in case of concurrency. An example of that would be case 344 for judicial year 19 in which the *EOT* was granted since most of the other delays to completion were attributed to the Employer despite the contractor being in delay⁹⁶. Nonetheless, another interpretation with a similar *CTC* solid ground for the case of concurrency is available. This interpretation is based on Article 290 and 291 of the *CTC*⁹⁷. Article 290 states that:

“It shall be permissible for the judge to reduce the level by which an act has to be made good or to order that it need not be made good if the person suffering harm participated by his own act in bringing about or aggravating the damage”

Moreover, Article 291 states the following:

“If a number of persons are responsible for a harmful act, each of them shall be liable in proportion to his share in it, and the judge may make an order against them in equal shares or by way of joint or several liability”

Both article can be interpreted as in the favor of the apportionment approach as can be further established from the Ministry of Justice *CTC* explanatory memorandum⁹⁸. The same was also found to be applied in certain UAE cases in a broader area than the case of concurrency as in the Dubai Court of Cassation 27, 31 and 49 for year 2008⁹⁹.

⁹⁵ Dean O'Leary, 'Dealing with Concurrency in Construction Delay Claims'. [April 2014] Al Tamimi & Co. Publication <https://www.tamimi.com/law-update-articles/dealing-with-concurrency-in-construction-delay-claims/#_ftn5>

⁹⁶ Supreme Court – Case 344 for Judicial Year 19 – 23rd Jan 1999

⁹⁷ UAE Civil Transaction Code – Law 05 of December 1985 – Article 290 & Article 291

⁹⁸ Ministry of Justice Explanatory Memorandum of UAE Federal Law 05 of Year 1985 (*CTC*) – Article 290 and 291.

⁹⁹ Dubai Court of Cassation – Case 27, 31 and 49 for Year 2008 – 27 April 2008

Chapter Three

3. EOT PROCEDURE IN FIDIC

3.1 Background

FIDIC standard form of contracts is defined as an inter-related set of clauses and sub-clauses that are placed in a form of contract designed to close link and in some cases sequence an associated set of required events and their timeframe for purpose of regulating the relationship between the contract parties (i.e. the Employer and the Contractor) or regulating the relationship between a contract parties and their representatives (i.e. the Employer, the Contractor, and the Engineer)¹⁰⁰. Despite the wide use in civil law countries such as UAE which clearly influenced some of its sub-clauses contractual features, *FIDIC* standard form of contracts comes from common law origin, in particular from the ICE standard form of contracts¹⁰¹. *FIDIC* standard forms are usually prepared to be a general guidance for contract drafting (hence the term “General Conditions”), and therefore it ideally complemented by Particular Conditions that are usually being negotiated by the contract parties¹⁰².

Nowadays, the construction contracts are heavily dependent on the use of *FIDIC 1999*. Being a country with highest number of the design-bid-build project delivery method type, the *FIDIC red book* standard form would be of the most use among the entire *FIDIC 1999* rainbow suite. In December 2017 FIDIC has published a second edition of the standard form of contract and considered to be an updated version of the FIDIC 1999 as it is following almost a similar structure, yet containing amendments that hold a promise of resolving the sources of certain contractual problems that were typically encountered in the older version¹⁰³. Given the objective of this study, the next sections will be going through the following:

- 1 The identified Employer Risk Events as well as the contractual claims and entitlement procedures under *FIDIC 1999 & FIDIC 2017 red book*.
- 2 Comparison of improvements between *FIDIC 1999 & FIDIC 2017 red book*

¹⁰⁰ Jaeger Axel-Volkmar & Hok Gotz-Sebastian. *FIDIC- A Guide for Practitioners*. (1st Ed., Springer, USA, 2010) 99

¹⁰¹ Bunni Nael, *The FIDIC Forms of Contract* (3rd ED, Blackwell Publishing, UK, 2005) 6

¹⁰² Kelleher Thomas J. Jr., Mastin John M. Jr., & Robey Ronald G. *Smith Currie & Hancock's Common Sense Construction Law – A Practical Guide for Construction Professional*. (5th Ed., Wiley & Sons, New Jersey USA 2015) 90

¹⁰³ R Scott, K. Swart & D. Brown, 'FIDIC Contracts'. [Mar 2017] Clyde & Co LLP Publications.

3.2 EOT in FIDIC 1999 Red Book

There are several standard clauses and sub-clauses that the contractor may refer to when attempting to substantiate an *EOT* claim under *FIDIC 1999 red book* since these clauses describe what has been previously highlighted as an Employer Risk Event or a Force Majeure Event. In substantiating a claim as per FIDIC, the following three main items should be established in the same order¹⁰⁴:

1 Contractual justification for the basis of *EOT*

Sub-Clause 8.4 [Extension of Time for Completion] will be the main clause to provide a ground for justifying an *EOT* claim. Such contractual justification for *EOT* claim is not limited to Sub-Clause 8.4 since part (b) of the same sub-clause states that an *EOT* will be granted for “a cause of delay giving an entitlement to extension of time under a Sub-Clause of these conditions¹⁰⁵. This is part of what has been referred to earlier as “establishing the causation”.

2 Compliance of *EOT* contractual procedure and timeframe.

Sub-Clause 20.1 [Contractor’s Claim] will be regulating the *EOT* contractual procedures and timeframe for contractual delay notices and required *EOT* submissions¹⁰⁶.

3 Agreement or recommended determination of *EOT* by the Engineer.

Once submission is made, the *Engineer* will be under the duty of attempting to reach an agreement between the contractor and employer pursuant to Sub-Clause 3.5 [Determinations], with no exact procedure or timeframe upon which such agreement should be reached. If no agreement is reached, the *Engineer* will be under the duty of making a “fair determination” in regards to the submitted *EOT* claim¹⁰⁷.

The following sub-sections will be reviewing the other contractual ground for *EOT* claims.

¹⁰⁴ K A Alnaas, A H Khalil, & G E Nassar, ‘Guideline For Preparing Comprehensive EoT Claim’ (2014). 1 HBRC. 313

¹⁰⁵ K A Alnaas, A H Khalil, & G E Nassar, ‘Guideline For Preparing Comprehensive EoT Claim’ (2014). 1 HBRC. 313

¹⁰⁶ Jaeger Axel-Volkmar & Hok Gotz-Sebastian. *FIDIC- A Guide for Practitioners*. (1st Ed., Springer, USA, 2010) 76 143

¹⁰⁷ Jaeger Axel-Volkmar & Hok Gotz-Sebastian. *FIDIC- A Guide for Practitioners*. (1st Ed., Springer, USA, 2010) 76 143

3.2.1 Delayed Drawings or Instructions

Pursuant to Sub-Clause 1.9 [Delayed Drawings or Instructions], the contractor will be entitled for an *EOT* along with cost compensation and reasonable profit if the project works is to be delayed or disrupted as a result of late issuance of drawings or instructions required from the Engineer beyond a reasonable timeframe. However, such entitlement will be nullified if the delay in issuing the drawings or instructions was caused by a default in the contractor's duties¹⁰⁸.

3.2.2 Site Possession

Sub-Clause 2.1 [Right of Access to Site] requires the Employer to provide "site access and possession of all site parts" within the time stated in the contract conditions (particular or appendix). If no such time to provide site access & possession is stated in the contract, it should be extracted from the programme of work submitted under Sub-Clause 8.3 [Programme]. Similar to Sub-Clause 1.9, the contractor will be entitled for an *EOT* along with cost compensation and reasonable profit as a result of Employer default under this Sub-clause. In the same way, such entitlement will be nullified if the delay was caused by a default in the contractor's duties¹⁰⁹.

3.2.3 Unforeseen Ground or Physical Conditions

This category covers the Employer Risk Events of errors in site setting-Out, unforeseen physical conditions or existence of fossils as covered under Sub-Clauses 4.7 [Setting-Out], 4.12 [Unforeseeable Physical Conditions], and 4.24 [Fossils] respectively. The contractor will still have a duty to verify any information, level points or site reports provided by the Employer in a similar way any reasonable contractor will be able to do. If the "reasonable contractor" test proved that such event could not be foreseen, then the contractor will be entitled for an *EOT* along with its cost under sub-clause 4.12¹¹⁰ and 4.24¹¹¹ as well as a reasonable profit under sub-clause 4.7¹¹².

3.2.4 Tests

All information about required tests such as the types, quantities or frequencies should be specified in the project contract. This includes the material tests and Test on Completion as defined by Sub-

¹⁰⁸ FIDIC 1999 Red Book – Sub-Clause 1.9 [Delayed Drawings or Instructions]

¹⁰⁹ FIDIC 1999 Red Book – Sub-Clause 2.1 [Right of Access to Site]

¹¹⁰ FIDIC 1999 Red Book – Sub-Clause 4.12 [Unforeseeable Physical Conditions]

¹¹¹ FIDIC 1999 Red Book – Sub-Clause 4.24 [Fossils]

¹¹² FIDIC 1999 Red Book – Sub-Clause 4.7 [Setting-Out]

Clause 9.1 [Contractor's Obligation]. If the Engineer under clause 13 [Variations & Adjustments] decided to increase or decrease such testing requirements, the contractor pursuant to Sub-Clause 7.4 [Testing] might be entitled for an *EOT* along with its cost and reasonable profit¹¹³. The same principle will be applicable if the Test on Completion was delayed or unjustifiably disrupted by the Employer as per Sub-Clause 9.2 [Delayed Tests] and Sub-Clause 10.3 [Interference with Tests on Completion], then the contractor will be entitled for an *EOT* along with its cost and reasonable profit¹¹⁴.

3.2.5 Variations

FIDIC red book gives the Engineer the right to instruction a variation of the original work as defined by Sub-Clause 13.1 [Right to Vary] which includes changing, increasing, decreasing or omitting certain work. This may also apply for Engineer's instructions under Sub-Clause 3.3 [Instructions of the Engineer]. The contractor, pursuant to Sub-Clause 13.3 [Variation Procedure] and 8.4 [Extension of Time for Completion], may find a justification for *EOT* claim and its associated compensation cost as a result of such variation¹¹⁵.

3.2.6 Suspension of Work

The contractor, after giving a 21 days advance notice, Sub-Clause 16.1 [Contractor's Entitlement to Suspend Work] gives the contractor the right to suspend or slow down the rate of work as a result of Employer's default in meeting the contractual financial obligations in terms of certifying the payment on time pursuant to Sub-Clause 14.7 [Payments], issuing the payment pursuant to Sub-Clause 14.6 [Issue of Interim Payment], or meeting other agreed financial arrangement between the Employer and the contractor as found in Sub-Clause 2.4 [Employer's Financial Arrangements]. Accordingly, the contractor will be entitled for an *EOT* along with compensation cost and reasonable profit from the day of commencing the suspension or slowing down the rate of work. It should be noted that the delay in payment does not entitle the contractor an *EOT* as shown in Sub-Clause 14.8 [Delayed Payment].

¹¹³ FIDIC 1999 Red Book – Sub-Clause 7.4 [Testing]

¹¹⁴ FIDIC 1999 Red Book – Sub-Clause 10.3 [Interference with Tests on Completion]

¹¹⁵ FIDIC 1999 Red Book – Sub-Clause 13.3 [Variation Procedure]

3.2.7 Force Majeure or Third Parties

Force Majeure and third party delays includes the following:

- ❖ Unforeseeable delay caused by authorities as defined in Sub-Clause 8.5 [Delay Caused by Authorities].
- ❖ Force Majeure as defined by Sub-Clause 19.1 [Definition of Force Majeure] and Sub-Clause 19.4 [Consequences of Force Majeure]. This includes but not limited to acts of strikes, wars, natural catastrophes and riots.
- ❖ Exceptionally adverse climatic conditions pursuant to Sub-Clause 8.4 [Extension of Time for Completion]. It should be noted that term “exceptionally adverse climatic conditions” was not properly defined under Sub-Clause 8.4. The same Sub-Clause provides a ground for *EOT* claim for the reasons of unforeseen personnel or good scarcity due to “government action or epidemic”. The consequence of variations as well as Employer (or Employer’s personnel) act of prevention could be also claimed under this Sub-Clause.
- ❖ Change in countries regulations or legislation as stated in Sub-Clause 13.7 [Adjustments for Changes in Legislation]

As mandated by Sub-Clause 20.1 [Contractor’s Claim] and Sub-Clause 3.5 [Determinations], these delays will be evaluated and subject to the Engineer’s determination in regards to contractor’s entitlement for an *EOT* along with its cost compensation. *Table 2* provides a summary for all the discussed justifications of delays¹¹⁶.

Table 2 FIDIC 1999 Red Book EOT Sub-Clauses

SR	Sub-Clause	Sub-Clause	Related Sub-Clauses	Compensation		
				Time	Cost	Profit
1	1.9	Delayed Drawings or Instructions	Sub-Clause 8.4 [Extension of Time for Completion] Sub-Clause 20.1 [Contractor’s Claim] Sub-Clause 3.5 [Determinations]	Yes	Yes	Yes
2	2.1	Right of Access to the Site	Sub-Clause 8.3 [Programme] Sub-Clause 8.4 [Extension of Time for Completion] Sub-Clause 20.1 [Contractor’s Claim] Sub-Clause 3.5 [Determinations]	Yes	Yes	Yes
3	4.7	Site Setting Out	Sub-Clause 8.4 [Extension of Time for Completion] Sub-Clause 20.1 [Contractor’s Claim] Sub-Clause 3.5 [Determinations]	Yes	Yes	Yes

¹¹⁶ FIDIC 1999 Red Book Relevant Clauses

4	4.12	Unforeseeable Physical Conditions	Sub-Clause 8.4 [Extension of Time for Completion] Clause 13 [Variations & Adjustments] Sub-Clause 20.1 [Contractor's Claim] Sub-Clause 3.5 [Determinations]	Yes	Yes	No
5	4.24	Fossils	Sub-Clause 8.4 [Extension of Time for Completion] Sub-Clause 20.1 [Contractor's Claim] Sub-Clause 3.5 [Determinations]	Yes	Yes	No
6	7.4	Tests	Sub-Clause 8.4 [Extension of Time for Completion] Sub-Clause 9.1 [Contractor's Obligation] Sub-Clause 9.2 [Delayed Tests] Sub-Clause 10.3 [Interference with Tests on Completion] Sub-Clause 20.1 [Contractor's Claim] Sub-Clause 3.5 [Determinations]	Yes	Yes	Yes
7	8.5	Delay Caused by Authorities	Sub-Clause 8.4 [Extension of Time for Completion] Sub-Clause 20.1 [Contractor's Claim] Sub-Clause 3.5 [Determinations]	Yes	Possible ¹¹⁷	Possible
8	13.3	Variations Procedure	Sub-Clause 3.3 [Instructions of the Engineer]. Sub-Clause 8.4 [Extension of Time for Completion] Sub-Clause 13.1 [Right to Vary] Sub-Clause 20.1 [Contractor's Claim] Sub-Clause 3.5 [Determinations]	Yes	Yes	Possible
9	13.7	Adjustments for Changes in Legislation	Sub-Clause 8.4 [Extension of Time for Completion] Sub-Clause 20.1 [Contractor's Claim] Sub-Clause 3.5 [Determinations]	Yes	Possible	No
10	16.1	Contractor's Entitlement to Suspend Work	Sub-Clause 8.4 [Extension of Time for Completion] Sub-Clause 14.7 [Payments] Sub-Clause 14.6 [Issue of Interim Payment] Sub-Clause 2.4 [Employer's Financial Arrangements] Sub-Clause 20.1 [Contractor's Claim] Sub-Clause 3.5 [Determinations]	Yes	Yes	Yes
10	19.3	Consequences of Force Majeure	Sub-Clause 8.4 [Extension of Time for Completion] Sub-Clause 19.1 [Definition of Force Majeure] Sub-Clause 20.1 [Contractor's Claim] Sub-Clause 3.5 [Determinations]	Yes	Conditional ¹¹⁸	No
11	8.4	<i>EOT</i> for Completion	All <i>EOT</i> Sub-Clauses from in this table	Yes	Possible	Possible

3.2.8 Issues of Special Considerations

Upon reviewing *EOT* related provisions in *FIDIC 1999 red book* and while taking into consideration issues highlighted in Chapter II, one can immediately infer the several areas where a dispute might arise between the contract parties. The first issue which is highlighted earlier is the total float ownership. *FIDIC 1999 red book* does not indicate anything in regards to who among the contract parties should be entitled for the activities total float ownership. Similarly, the *FIDIC 1999 red book* is found to be silent about the issue of concurrency in general¹¹⁹. Given the different scholars' views on these two particular issues in sections 2.7.1 and 2.7.2, they would be highly

¹¹⁷ Depending on the Engineer's Determination pursuant to FIDIC 1999 Red Book Sub-Clause 3.5 [Determinations]

¹¹⁸ Conditions are FIDIC 1999 Red Book Sub-Clause 19.1 [Definition of Force Majeure]

¹¹⁹ Jaeger Axel-Volkmar & Hok Gotz-Sebastian. *FIDIC- A Guide for Practitioners*. (1st Ed., Springer, USA, 2010) 247

expected to become sources of *EOT* claim disputes as each party may interpret the contract silence to his advantage. Having a general definition or being a silent contract has been also observed in other issues such as not having an exact definition for “exceptionally adverse climatic conditions” in Sub-Clause 8.4¹²⁰.

Another critical issues of consideration would be the *FIDIC EOT* procedure and entitlement itself which are both governed by Sub-Clause 20.1 and Sub-Clause 3.5. According to the *EOT* submission requirements stated in Sub-Clause 20.1, the *EOT* submission should be made within 42 days following a 28 days notification about the claim, both of timeframes are considered from the moment the contractor “became aware or should have become aware of the event”. Such submission should be made by the contractor to the Engineer with “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”, without specifying any further details about the content of such submission. The same Sub-Clause also provides the Engineer with the right to request further particulars which he may find are required. Finally Sub-Clause 20.1 requires the Engineer to respond to the claim within 42 days but does not otherwise indicate any implication if such time bar was not met by the Engineer. In the similar way, even though Sub-Clause 3.5 [Determinations] requires the Engineer to attempt reaching an agreement between the disputing parties or otherwise make a determination in regards to the submitted claim, it does not provide guidance on how both tasks will be performed. Therefore, it would be reasonable to assume that the delay analysis method is going to be another subject of dispute in addition to all other areas stated above.

3.3 EOT in FIDIC 2017 Red Book

The *FIDIC 2017 Red Book* followed a similar structure to the previous version. Hence, in the general form, the same *EOT* process discussed earlier will be followed under *FIDIC 2017 red book*. This includes providing the requirement documents to establish the causation and impact, and verify the trueness of claim statement by other project particulars and records, in order to be finally evaluation and determination by the Engineer. However, the content of many of the sub-clauses were modified and in certain cases changed entirely as it will be shown in the following sub-sections

¹²⁰ H Besaiso, D Wright, P Fenn, & M Emsely, ‘A Comparison of The Suitability of FIDIC and NEC Conditions of Contract in Palestine’. (2016). COBRA RICS. 6

3.3.1 New Claim Substantiation Procedure

The first thing that could have been observed in the *FIDIC 2017 red book* is the slight amendment of the certain responsibilities related to placing a claim on record, substantiating a claim, or evaluating the claim. For example, Sub-Clause 8.4 [Advance Warning] requires from all parties (the Engineer or the Contractor) to advise the other party about any realized or expected event that could result in impacting the work performance and delay the execution¹²¹. Nonetheless, given the fact that the same Sub-Clause places a condition of seeking a mitigation or avoidance about the impact of notified events, such notification under Sub-Clause 8.4 will not be found to be linked in any way with Sub-Clause 20.2.1 [Notice of Claim] and consequently will not relieve the Contractor from its duty of the 28 days *EOT* notification that was previously required in *FIDIC 1999*¹²². However, it may be argued that the notification requirements under Sub-Clause 20.2.1 is conditioned with the claimant party being aware or should have been aware of the claimed event which in return might be also conditioned by other could performing its duty of advance warning under Sub-Clause 8.4 and as a result using such argument to extend the 28 days notification period. If the Engineer finds that such obligation is being misused or being defaulted, he should provide a written notice stating such rejection within 14 days of receiving the Claimant notice.

Following the notification, *FIDIC 2017* is found to be providing more details as to what should be submitted for to substantiate the claim within 84 days (or otherwise agreed) from date by which the claimant was aware and should have been aware of event. It will be noticed that Sub-Clause 20.2.4 [Fully Detailed Claim], requires the submission of at least the following:

- ❖ Description in sufficient details for the delay event
- ❖ Contractual or legal ground for claim
- ❖ Contemporary records which also is further defined under Sub-Clause 20.2.3 [Contemporary Records] as all supporting documents that were “prepared or generated at the same time or immediately after the event or circumstance giving rise to Claim”.
- ❖ Any other supporting particulars.

The *FIDIC 2017 red book* also takes into consideration the fact that some claims might not be necessary concluded on one instance, and therefore allows under Sub-Clause 20.2.6 [Claims of

¹²¹ FIDIC 2017 Red Book – Sub-Clause 8.4 (B) & (C) [Advance Warning]

¹²² FIDIC 2017 Red Book – Sub-Clause 20.2.1 [Notice of Claim]

Continuing Effect] for the submission of “interim claims” under the same procedure or required documents of concluded delay event. However, the claims under Sub-Clause 20.2.6 should be resubmitted on monthly interval until the conclusion of the delay event. Once this stage is reached, the Claimant should be submitting a final claim within 28 days.

3.3.2 New Claim Evaluation Procedure

The claim assessment procedure has also witnessed a major modification in *FIDIC 2017 red book*. The first noted amendment would be about the Engineer who is going to be determining the claim. Pursuant to Sub-Clause 3.1 [The Engineer], the Engineer should not only be a “professional engineer” but also a person with considerable fluency in the law and ruling language. This will be considered by most of the Employers as something significantly hard to obtain since employers tend to hire project managers rather than professional engineers (i.e. ones who are certified by recognized institutes of practice) or someone who has considerable fluency in the ruling language¹²³. Another added difficulty pertaining to the same is that Sub-Clause 3.4 [Delegation by the Engineer] does not allow such obligation of reaching an agreement or determining a claim under Sub-Clause 3.7 [Agreement or Determination] to be delegated to another personnel¹²⁴. The second major difference in *FIDIC 2017 red book* would be found in the determination or agreement process under Sub-Clause 3.7. The overall sub-clause becomes more detailed with much clearer focus on attempting to reach an agreement before making an Engineer determination. Both the agreement and determination process are bounded by a specification timeframe specified under Sub-Clause 3.7.3 [Time Limits] which provides a 42 days for the Engineer to reach an agreement and an additional 42 days to make a determination if the agreement was not reached between the parties, making the total timeframe for concluding the determination or agreement equal to 84 days utmost. Within 14 days further to the determination and pursuant to Sub-Clause 3.7.4 [Effect of the Agreement or Determination], the Engineer has the right to review and further validate all details of the determination, and in case an error was discovered whether by the Engineer or by a notice from the parties, the Engineer has 7 days to correct the error and notify the parties about such correction thereafter. Unless the party who was not satisfied by the Engineer determination sends an official Notice of Dissatisfaction (*hereafter NOD*), the effect of the determination should be binding on both parties under the contract as stated in Sub-Clause 3.7.5

¹²³ Victoria Tyson. ‘Clause 3: The Engineer.’ [2018] CORBETT & CO International Construction Lawyers.

¹²⁴ Victoria Tyson. ‘Clause 3: The Engineer.’ [2018] CORBETT & CO International Construction Lawyers.

[Dissatisfaction With Engineer's Determination]. The consequences of the *EOT* claim entitlement were found to be slightly amended in the new version of *FIDIC*, since Sub-Clause 8.8 [Delay Damages] has allowed for removal the cap on the damages in proven cases of "fraud, gross negligence, deliberate default or reckless misconduct by the Contractor"¹²⁵.

3.3.3 Amendments on FIDIC 1999 EOT Provisions

As stated earlier, *FIDIC 2017 red book* followed a similar outline as found in the *FIDIC 1999 red book*. Hence, the content of Sub-Clauses giving the contractual ground for justifying the *EOT* claims was also noted to be similar. *Table 3* below summarizes these difference.

Table 3: Comparison of FIDIC 2017 & FIDIC 1999 Red Book

S R	Sub-Clause Description	Sub-Clause FIDIC 1999	Sub-Clause FIDIC 2017	Main Differences	FIDIC 17 Related Sub-Clauses
1	Delayed Drawings or Instructions	1.9	1.9	<ul style="list-style-type: none"> No major difference 	<ul style="list-style-type: none"> Same*
2	Right of Access to the Site	2.1	2.1	<ul style="list-style-type: none"> No major difference 	<ul style="list-style-type: none"> Same*
3	Site Setting Out	4.7	4.7	<ul style="list-style-type: none"> Increased contractor responsibility for verification of data accuracy 	<ul style="list-style-type: none"> Same* Sub-Clause 2.5 [Site Data and Items of Reference] Sub-Clause 13.3.1 [Variation by Instruction]
4	Unforeseeable Physical Conditions	4.12	4.12	<ul style="list-style-type: none"> Rewording and more description of the Notice content Time limits of Engineer inspection (7 days or as otherwise agreed) EOT will be subject to proper notification as in Sub-Clause 4.12.1 & 4.12.3 	<ul style="list-style-type: none"> Same* Sub-Clause 13.3.1 [Variation by Instruction]
5	Access Route	4.15	4.15	<ul style="list-style-type: none"> Similar Wording Changes in the last paragraph in which non-availability of access if caused by an Employer action will entitle the Contractor for <i>EOT</i> and cost compensation 	<ul style="list-style-type: none"> Same*
6	Fossils	4.24	4.23	<ul style="list-style-type: none"> Changes in the Sub-Clause name only to become Archaeological and Geological Findings. 	<ul style="list-style-type: none"> Same*
7	Tests	7.4	7.4	<ul style="list-style-type: none"> Changes in the Sub-Clause name only to become "Testing by the Contractor" Minor Changes in Contractor's Testing Obligations 	<ul style="list-style-type: none"> Same*
8	Delay Caused by Authorities	8.5	8.6	<ul style="list-style-type: none"> No major difference 	<ul style="list-style-type: none"> Same*

¹²⁵ FIDIC 2017 Red Book – Sub-Clause 8.8 [Delay Damages]

9	Variations Procedure	13.3	13.3	<ul style="list-style-type: none"> Rewording and Dividing into two sections for variations by Engineer's instructions or Contractor's Proposal Consideration of variation impact on health and safety. 	<ul style="list-style-type: none"> Same* Sub-Clause 4.8 [Health and Safety Obligations] Sub-Clause 4.18 [Protection of the Environment]
10	Adjustments for Changes in Legislation	13.7	13.6	<ul style="list-style-type: none"> Changes in the Sub-Clause name to become "Adjustment for Changes in Laws" Expanded the area of the law changes to include changes in permits or requirements of permits as included in Sub-Clause 1.13 The Employer may benefit from the changes if there is a resulted cost reduction 	<ul style="list-style-type: none"> Same* Sub-Clause 1.13 [Compliance with Laws]
11	Contractor's Entitlement to Suspend Work	16.1	16.1	<ul style="list-style-type: none"> Changes in the Sub-Clause name to become "Suspension by Contractor" 	<ul style="list-style-type: none"> Same*
12	Consequences of Force Majeure	19.3	18.4	<ul style="list-style-type: none"> Changes in the Sub-Clause name to become "Consequences of Exceptional Event" 	<ul style="list-style-type: none"> Same*
13	EOT for Completion	8.4	8.5	<ul style="list-style-type: none"> Further Investigated in Section 3.3.4 	<ul style="list-style-type: none"> Same* Further Investigated in Section 3.3.4

* Indicates that there is no added related Sub-Clauses. However, the Sub-Clause number might be changed depending on the new *FIDIC 2017 red book* reference. For example, Sub-Clause 20.1 in *FIDIC 1999* will be *Sub-Clause 20.2* in *FIDIC 2017 red book*. Similarly, Sub-Clause 3.5 in *FIDIC 1999* will be *Sub-Clause 3.7* in *FIDIC 2017 red book*

3.3.4 Issues of Special Considerations

The main issues raised in section 3.2.9 were found to be touched upon in *FIDIC 2017 red book*. First, the ambiguity about the interpretation of "exceptionally adverse climatic conditions" provided in the previous *FIDIC* version has been clarified further in Sub-Clause 8.5 [Extension of Time for Completion] and the evaluation of which will be subject to the following two elements¹²⁶:

- ❖ Weather data provided by the Employer pursuant to Sub-Clause 2.5 [Site Data and Items of Reference].
- ❖ Published weather data for the country of the project.

The same clarification was found to be made for the required substantiated *EOT* claim documents in Sub-Clause 20.2 [Claims for Payment and/or EOT].

On the other hand, for the issue of total float ownership and concurrency evaluation, Sub-Clause 8.5 refer to the explanation provided in the special provisions which is defined by *FIDIC* as the guidance documents to drafting the Particular Conditions. In the *FIDIC* Guidance for the

¹²⁶ *FIDIC 2017 Red Book – Sub-Clause 8.5 [Extension of Time for Completion]*

Preparation of Particular Conditions, Sub-Clause 8.5 has acknowledged the fact that there is no internationally accepted standard for the evaluations of such issues and subsequently recommended to draft the Sub-Clause in compliance with the Country law. Nevertheless, the same provision indicated that *SCL protocol* could be utilized for the evaluations of such matters¹²⁷. The use of *SCL protocol* might be marked as an inconsistency in the *FIDIC 2017* itself since the recommended position in protocol is based on the Prevention Principle whereas Sub-Clause 17.2 [Liability for Care of the Works] is more toward adopting the apportionment approach¹²⁸.

¹²⁷ Taner Dedezade. 'Clause 8: Commencement, Delays & Suspensions'. [2018] CORBETT & CO Intl' Const. Lawyers.

¹²⁸ Taner Dedezade. 'Clause 8: Commencement, Delays & Suspensions'. [2018] CORBETT & CO Intl' Const. Lawyers.

Chapter Four

4. RESEARCH METHODOLOGY

This section is intended to provide a general outline and guidance for the collection of construction professional feedback pertaining to the issue of *EOT* claims. For the successful completion of this specific task, the following must be carefully performed:

1. Proper survey design
2. Careful selection of survey participants
3. Meaningful data collection & analysis method

4.1 Design of the Survey

The questions in the survey will be targeting to investigate the operation of *EOT* procedure in general and the main issues of the *EOT* claims in particulars. As shown in the literature review and several other studies¹²⁹, the analysis of total float ownership, the choice of impact analysis method, establishing the causation of delay events, and analysis of concurrency were found to be issues of significant amount of varying professional positions and subsequently have higher potential for causing disputes. In addition, the designed survey questions considered the other main objective of the dissertation which is to investigate the suitability of the new *EOT* procedures as provided in *FIDIC 2017 red book*. Thus, a total of 12 survey questions were provided as follows:

- ❖ 4 questions to obtain relevant information about the sample to be analyzed. This will be very important to identify responses outliers in the sense that the respondent was either of irrelevant experience, irrelevant academic background, or providing a contradictory information between the 4 questions such as the age and the years of experience. This is also to establish the sample best representation of construction professional population as it will be discussed in section 4.2.
- ❖ 5 questions to investigate the issues of special consideration in *EOT* claims such as the total float ownership, concurrency, and delay analysis method
- ❖ 3 questions to collect the opinion in regards to the improvements made or to be made for the *EOT* procedure in *FIDIC 2017 red book*.

¹²⁹ N.M. Yusuwan, & H. Adnan, 'Issues Associated with EOT in Malaysian Construction Industry'. (2013). 9. P.T S.D. 6

- ❖ 1 field was marked as question 13 which is an optional field for the respondents to provide their personal email shall they wish to be aware of the results of this study. This field was placed to provide a scientific incentive for the respondents to participate in the survey.

It should be noted that in order to ensure obtaining the most required information from the survey participants, the process of designing the survey questions was well-coordinated with British University in Dubai (*hereafter BUiD*) Construction Law faculty as shown in the dissertation appendix.

On the other hand, there were other considerations taken into account when designing the survey. For example, the survey placed a clear disclaimer that there will not any financial consideration for the respondent from participating in the survey, and thus eliminating any confusion in this regard and improving the scientific reliability of the collected answers. Besides, the same disclaimer ensured the confidentiality of the identities of the respondents shall they wish not to reveal it.

4.2 Selection of Survey Participants

The participants responding to the survey questions should be having relevant educational background, relevant career background and significant number of years of experience. Accordingly, the survey was distributed strictly among *BUiD* construction law masters students along with construction professionals with experience in construction contracting, consultancy, planning, contract administration and claim analysis. Answers were obtained from a total of 52 respondents that were of age group as shown in Figure 1 and of number of years of experience as shown in Figure 2. To confirm the suitability of the respondents' years of experience, the answers will be divided into three main groups. The first group will be the respondents possessing low years of experience which will be defined as the work experience of 7 years or less. Similarly, the second group will be marked as average years of experience and will be defined as the one of 8 to 12 years. Finally, the third group will be expert respondents that are having above 12 years of experience. *Figure 2* shows that a total of 28 (i.e. 54% of the respondents) were from the expert category, 17 (i.e. 33% of the respondents) were from the average category, and finally 7 (i.e. 13% of the respondents) were from the low category. Thus, the sample contains an acceptable number of experts and consequently the response received should be of an added value to the dissertation objective.

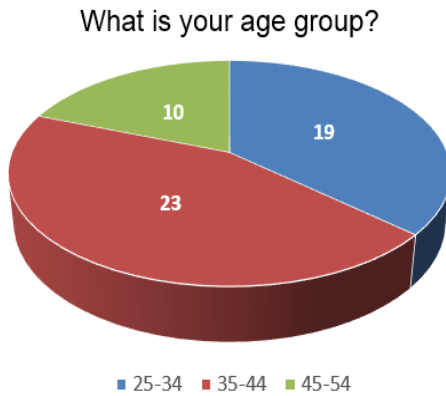


Figure 1: Respondents Age Group

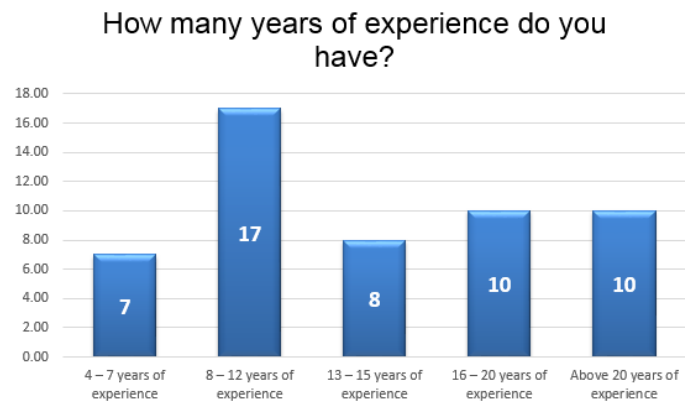


Figure 2: Respondents Years of Experience

The required types of participants were supposed to be of relevant educational and career background. Accordingly, it was sought to receive answers from individuals with Bachelor or Post Graduate degree in Law, Management or Engineering. Figure 3 shows the number of participants from each educational level with two participants decided to answer separately under “others” field. Upon exploring their answers, it was found that the two answers were PhD in Law and M.Sc. in Engineering, in which they also fall under the answer category of Post Graduate Degree in Law and Post Graduate Degree in Engineering, respectively. In this regard, this makes the selected sample an unbiased one as it has an almost equal number of engineers (i.e. 54% of the respondents) to respondents from other educational background (i.e. 46% of the respondents). On the other hand, the respondents’ field of expertise was sought to be from construction contracting, construction consultancy, planning and scheduling, client or developer, law, claim analysis, or contract administration. As shown in Figure 4, respondents from these fields of expertise have participated in the survey in almost an equivalent amount except the ones from client or developer background which could be considered as minor limitation to the study since the requirements of this group will still be also represented by construction consultants of the same sample. The remaining one response under the “other” category has a recorded answer of educator.

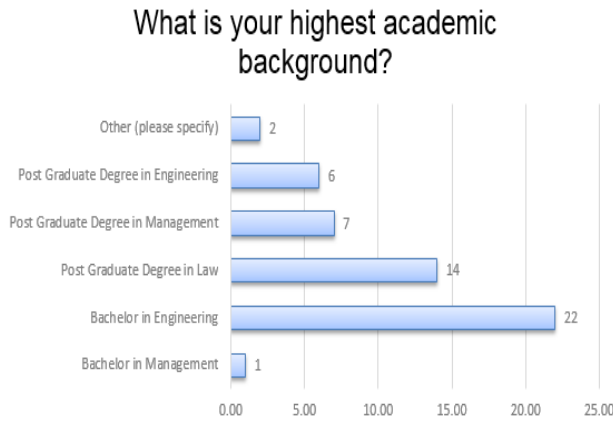


Figure 3: Respondents Educational Background

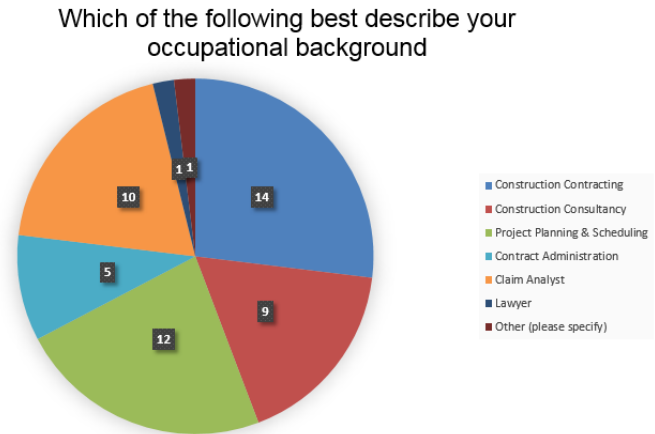


Figure 4: Respondent's Field of Expertise

4.3 Data Collection & Analysis Method

The survey was designed and distributed online. The survey was uploaded to a public domain called SurveyMonkey.com given the features offered by this website such as, but not limited to, restricting the answers from the same device as well as the qualitative and quantitative analysis options and graphs it offers. The invitations to the survey were delivered to the intended respondents via mails and their professional network accounts.

The research will not be performing any type of regression or advance statistical analysis as there is not hypothesis to be tested or significant relationship between the variables to be proven. Rather, the research will be using the answers provided by the people involved in the *EOT* process to formulate the opinion about three main points. The first one is the major difficulties being encountered in the *EOT* process and whether earlier identified concerns pertaining to method of impact analysis, total float ownership, concurrency analysis are still being perceived as such in the construction industry. The second one is to assess certain changes proposed by the *FIDIC 2017 red book* in the *EOT* evaluation and entitlement process. The survey questions will not identify these changes as being made by the *FIDIC 2017* in order to ensure sample unbiasedness. The last point is to identify if there are other major issues being encountered in the *EOT* process not being considered by any of the *FIDIC red books*.

On the other hand, given the fact that the last question is an open-ended question to receive the opinions of the respondents on other issues not touched upon in the survey, this question will be requiring a different methodology to extract the trends of the respondents' answers. All the answers

will be reviewed, and similar answers with slightly different texted will be assigned with the same code or *dummy variable*. As a result, this question can be also interpreted statistically as it will be shown in section 5.3.3.

Chapter Five

5. DATA ANALYSIS & DISCUSSION

5.1 Overview

As it has been established earlier, the selected sample contains a total of 52 of respondents with acceptable numbers and distribution of related educational background and type as well as level of expertise. Accordingly, the answers received will be used to for basic quantitative and, for most of the parts, qualitative analysis to supplement the objective of the dissertation. The questions of the survey will be touching upon three main areas were as follows:

1. The main factors of *EOT* disputes
2. Effectiveness of Certain Changes in the *EOT* procedures proposed by *FIDIC 2017 red book*
3. Other Factors of *EOT* disputes.

5.2 EOT Disputes

This area of the survey was covered from question 05 to question 09. The issues that were investigated under this category were the main causes of *EOT* entitlement disputes, the delay analysis methods, the total float ownership, and analysis of concurrent delay.

5.2.1 Main Causes of EOT Disputes

Question 09 of the survey sought to find out the opinions of construction professional respondents on the main issues of *EOT* disputes. The questions asked the following:

“From your experience, what was the first reason for disputing the contractor *EOT* entitlement?”

The answers were summarized in Figure 5, which shows that 39% of respondents were of the opinion that issues related to concurrent delays are of the highest causes of *EOT* disputes, 25% of which stated that the main issue of concurrency is the analysis of its impact while the remaining 14% were of the opinion that it would an issue of determining the contractor’s entitlement in the case of true concurrency. The survey also indicated that the second main factor of disputing the *EOT* entitlement would be establishing the causation between the delay and the activity being impacted with 25% of the respondents choosing this option. The survey also shows that causation factor was viewed as equally attributing to *EOT* disputes as the impact analysis factor since 25%

of the respondents have chosen this option, 14% of which have indicated it would be an issue of different contract parties expectation on the impact of the delay whereas 12% indicated it would be a dispute over the impact analysis method itself. Having conflicting project records and having conflicting interests of the contract parties was chosen to be the least factor to be causing *EOT* entitlement disputes in which these options were chosen by 4% and 6% of the respondents, respectively.

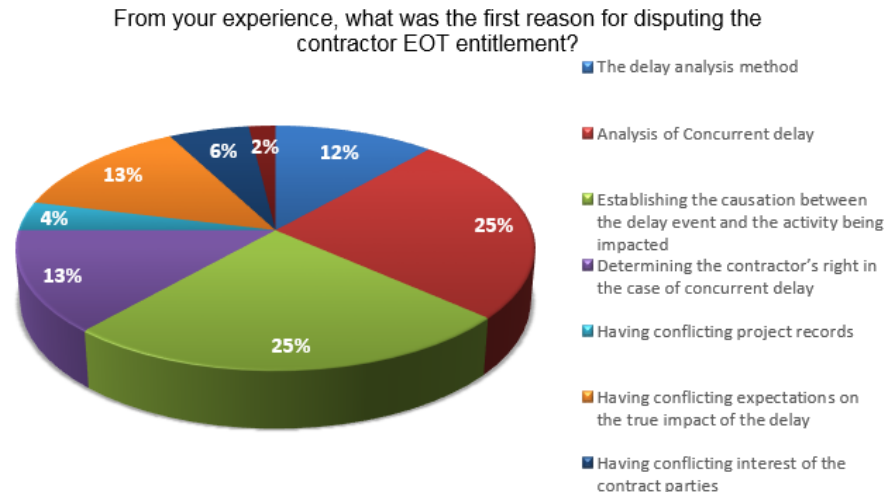


Figure 5: Main Causes of EOT Disputes

5.2.2 Total Float Ownership

The survey also inquired about the perception of the respondents about the ownership of total float. Question 5 asked the following:

“In your opinion, who should be having the right to utilize the total float?”

The answers are summarized in Figure 6. The respondents were mostly of the same view updated by the *SCL protocol* in which the 59% of them believe that the total float should be utilized for the project benefit and accordingly the ownership should be claimed on a first come first serve basis. It should be noted that another view on total float ownership was adopted by the respondents with considerable yet less percentage of views. It was found that 35% of the respondents believe that the total float ownership should be claimed by the contractor only. Finally, the Employer and/or Consultant ownership of total float was adopted by a minor number of respondents, equivalent of 6% of the total answers.

In your opinion, who should be having the right to utilize the total float

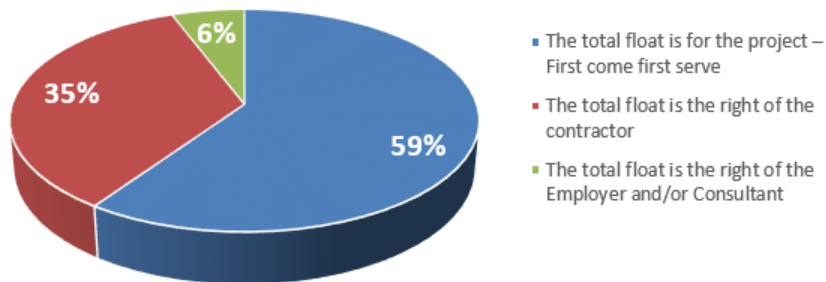


Figure 6: Respondents' View on Total Float Ownership

5.2.3 Impact Analysis Method

The second issue that was examined by the survey was the impact analysis method. Given the answers described in Figure 5 and the importance of this issue as a factor of *EOT* disputes, such examination would be significantly necessary. In this context, two questions were asked to the professional as follows:

- 5) **“From your experience, what was the most delay analysis method that was found acceptable by all project parties?”**
- 6) **“Which delay analysis method would you recommend?”**

As shown in Figure 7, there is a common agreement equivalent to 67% of the respondents on the fact that the Time Impact Analysis method is one to be mostly agreed by all contract parties. The other methods have not received less than 8% of the respondents' answers each with the Collapsed As-Built not receiving any answers from the 52 respondents. It should be noted that there is another major opinion by 15% of the respondents that such agreement was not reached in their project as long as the delay analysis method was not clearly stated in the contract.

From your experience, what was the most delay analysis method that was found acceptable by all project parties?

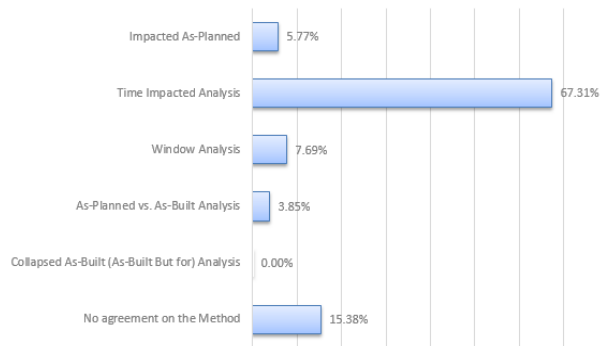


Figure 7: Respondents' View on Most Agreed Delay Analysis Method

Which delay analysis method would you recommend?

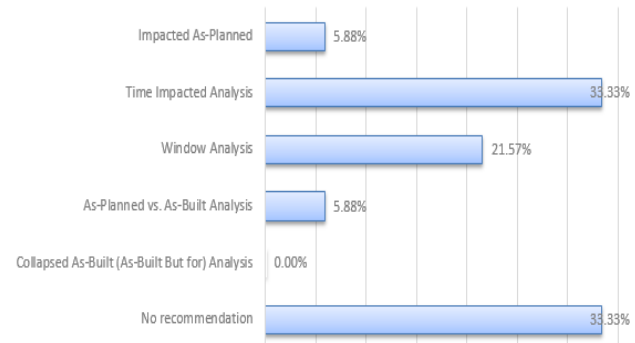


Figure 8: Respondents' Recommendation on Most Agreed Delay Analysis Method

On the other hand, when the participants of the survey were asked about their recommendations on the delay analysis method, the answers were significantly different than the ones obtained in the previous questions as shown in Figure 8. The two main opinions receiving 33% of the respondents' answers were the Time Impact Analysis answer and the No Recommendation answer which is explained in the survey itself is due to the fact that each delay analysis method depends on the time and type of event and thus no recommendation for specific method is to be made. Unlike the previous question, 28% respondents in this questions recommends method of retrospective or forensic nature such as the Window Analysis which is chosen by around 22% of the respondents, and the As-Planned vs. As-Built method which is chosen by around 6% of the respondents. However, the respondents in this question as well showed no major tendency toward choosing the impacted as planned or the collapsed as-built delay analysis method as shown in Figure 8.

5.2.4 Concurrency

The last important issue examined by the survey questions was the issue of concurrency. Pertaining to this issue, the following question was asked:

“What is your view on Concurrent delay?”

Figure 9 The respondents' answers showed that 67% of them believe that in the case of concurrency, the contractor should be entitled for the *EOT* without cost compensation whereas 19% believed that the contractor should be entitled for both *EOT* and cost compensation and only

10% believed that there is no contractor entitlement in case of concurrency if the contractor's delay is more than the employer/consultant delay.

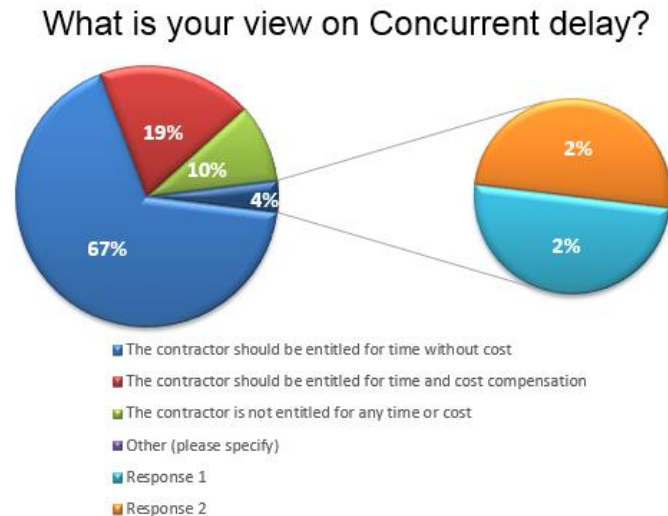


Figure 9: Respondent's View on Contractor's Entitlement in Case of Concurrency

It was also noted that 4% of the respondents (2 answers) were recorded under the “Other” category. The first answer has remarked that the contractor's entitlement depends on the result of the analysis. The second answer provided a similar insight to the main respondents' trend with slight variation. The answer stated that in case of concurrency, the contractor will be entitled with *EOT* without cost compensation, however such entitlement might vary and the cost compensation to be provided depending on the circumstances of the delay.

5.3 Changes in FIDIC 2017 Red Book EOT Procedures

In this part of the survey, the effectiveness of certain changes introduced by *FIDIC 2017 red book* to the *EOT* procedure will be examined. The questions have not indicated that such changes were made by *FIDIC 2017* in order to retain unbiased responses. This area of the survey was covered from question 10 to question 12 in addition to the answers of questions 05 to 09 that also could be used in the later analysis of the same as well. The two modifications that will be examined are introduction of a standard practice for *EOT* evaluation (i.e. *SCL protocol* or *AACEI RP 29R-03*), and the time-framed procedure to reach an agreement prior to any determination.

5.3.1 Introducing the SCL Protocol or ACEI RP 29R-03

The questions revealed that introducing a best practice related to *EOT* procedure such as the *SCL protocol* or the *ACEI RP 29R-03* would be a very important addition. Respondents were on an average of 65% in the opinion that such modifications will be beneficial in reducing *EOT* disputes as it will help establish an agreement on *EOT* key definitions and the method of impact analysis as well as other subject pertaining to *EOT* evaluations as in the case of total float ownership. An only average of 8.8% of the respondents was of the opinion that such modification will not be of any use as shown in Figure 10.

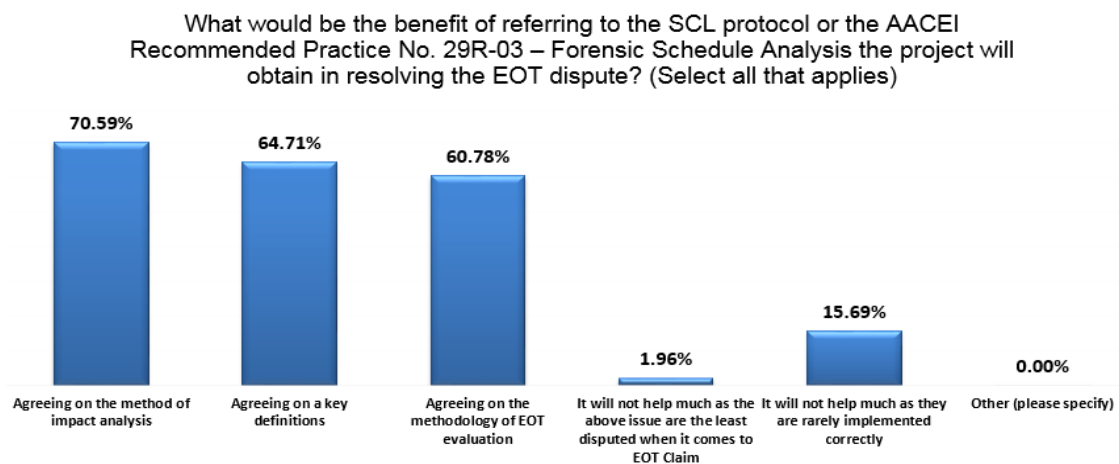


Figure 10: Respondent's View on Introducing SCL Protocol or ACEI RP 29R-03

5.3.2 Time-framed Agreement

The question revealed another consensus by most of the respondents. Figure 11 shows that 65% of the respondents believed that having such provision would be significantly helping resolving *EOT* disputes. The second majority of respondents consisting 27% of the answers were of the opinion that such detailed provision would not be needed if the methodology for *EOT* evaluation is in place and clear to all contract parties. It was only 8% of the respondents who believed that such provision is of no use.

Do you believe that establishing a time-framed procedure to reach an agreement before EOT determination would help in resolving EOT disputes?

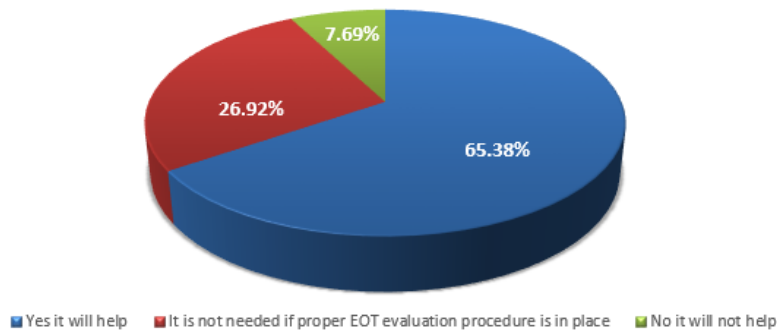


Figure 11: Respondents View on Having Timeframe for Agreement Prior to Determination

5.3.3 Other Factors of EOT Disputes

This part of the survey was covered under question 12 which is an open-ended question placed in the survey to receive feedback from the respondents on issues not addressed in the other questions of the survey. There were a total of 89 answers provided in this question. For properly analyzing the answers in this part, the following has been done.

- 7) Similar answers in nature were placed under one category.
- 8) This category was given a dummy code in order to carry out frequency statistical analysis.
- 9) The dummy codes, categories, the frequency statistical analysis as well as the order of the answers from highest to lowest were provided in Table 4.

The contractual issues highlighted by the respondents were in some of the cases attributed to the existence of conflicting contract terms, and in several other cases due to the lack of understanding of contract terms such as concurrent delay, having allegedly unfair contract conditions, or misusing certain other terms such as delay mitigation clauses (shall be there any in the contract). Similarly, answers that were considered under the category of Delay Causation and Analysis were attributing the source of dispute to agreeing on proper delay fragnet, exaggerating the impact of delay, agreeing on the method of analysis, establishing a link between the delay and the impact, or analyzing the case of concurrency. The same was done for the cost claims category in which it includes factors of cost variations, cost compensation due to disruption or prolongation, and loss claims whether to the contractor or employer. Finally, answers that attributed the *EOT* disputes due to lack of proper stakeholders involvement or payment issues were chosen the least among all the other factors.

Table 4: Summary of Other Factors of EOT Disputes

Other Area of EOT Dispute	Dummy Code	Frequency	Percentage
Contractual Reasons	1	25	28.09%
Delay Causation & Analysis	5	21	23.60%
Notifications & EOT Procedure	2	17	19.10%
Site Records	3	8	8.99%
Cost Claims	6	8	8.99%
Periodic Updates	4	5	5.62%
Contract Parties Relationship	9	3	3.37%
Stakeholders Involvement	7	1	1.12%
Payment Issues	8	1	1.12%
Total	NA	89	100%

5.4 Discussion of Results

As per the findings of first part of the survey, the *EOT* disputes were attributed to reasons such as the concurrent delay analysis and entitlement, the orders of the main factors attributed *EOT* disputes were summarized in Table 5 and Figure 5: *Main Causes of EOT Disputes*. These results were almost similar to the ones obtained in questions 12 of the survey for the same factors as shown in Table 4.

Table 5: Orders of Respondents Choices for Main Factor of EOT Disputes - Survey Question 05

SR	Factor of <i>EOT</i> Disputes	Percentage of Respondents
1	Concurrent Delay	39%
2	Establishing the Causation	25%
3	Impact Analysis Method	25%
4	Conflicting Contract Parties Interest	6%
5	Conflicting Project Records	4%

Reflecting the above and the other survey findings obtained from question 05 to question 12 on the *EOT* process currently being adopted under the UAE *CTC* or *FIDIC 1999 red book*, one thing could be immediately confirmed is that both are lacking major articles and contract provisions that deal with main causes of *EOT* disputes such as the one listed in Table 5 and Table 4. Whereas amending the *CTC* may require a legislative enactment which would be a long process anywhere, modifying the *FIDIC red book* in a way that deals with these factors would be easier and should take lesser time. The same was also found true in the case of total float ownership in which both the *CTC* and *FIDIC 1999 red book*. Despite the fact that the majority of the respondents (59%) have answered that the total float is the right of the project not a specific contract party, it still expected to be another source of *EOT* disputes as there is another considerable number of

respondents (35%) who are with the opinion that the total float might be contractors right as shown in Figure 6. Another issue that was indicated by the respondents and was considered under contractual issues in Table 4 was the issue of having allegedly unfair contract conditions that the contractor is being urged to sign. Even though in this case the contract would still be valid and in place once signed by both parties, having such conditions may result in the judge waiving such allegedly unfair conditions under an adhesion contract pursuant to *CTC* article 248.

On the hand, as per the results of most of the answers in the survey, it could be found that *FIDIC 2017 red book* have dealt with *EOT* issues, to a certain extent, in a more comprehensive way. First, while the issue of total float ownership was not explicitly addressed in the new *FIDIC* release, the suggested *SCL protocol* by the *FIDIC 2017 red book* has some insight on the same issue. As explained in the literature review section, the *SCL protocol* was found to be adopting the view that total float should be utilized for the purpose of serving the project rather than being specifically owned by a certain contract party, or in other words it should be utilized on a “first come first serve” bases. This view matched the majority of results obtained from answers to question 05 of the survey.

The survey also revealed another significant results pertaining to impact analysis methods, concurrency analysis, and subsequently the effectiveness of the modifications instituted by the *FIDIC 2017*. According to the experience of the respondents, it is confirmed that the most agreed method of analysis is the Time Impact analysis as shown in Figure 7. This approach of impact analysis, though referred to and discussed by the *SCL protocol*, the exact method of application and insertion to the updated programme was found to be clearer in the *AACEI RP 52R-06* rather than *SCL protocol* as referenced in the literature review section. Likewise, the split of the respondents’ answers as well as the explicit statement that recommending a specific delay analysis method is subject to the time and type of delay event to question 08 when asked to recommend a specific delay analysis method shows that it is important to place a framework to direct the selection and the application of the most appropriate method. Thus, by placing the *SCL protocol* as a recommended best practice by *FIDIC 2017 red book*, the selection of the most appropriate method would be of less disputes. However, without supplementing such recommendations with the *AACEI RP 29R-03* for forensic analysis of the delay or *AACEI RP 52R-06* for the TIA, the application of the selected method would be still a subject of dispute. This could be further affirmed by the respondents’ answers to question 10 of the survey.

The answers for question 08 for issue of concurrency, however, have provided a different insight. The following should be noted:

- 1) The third option to be selected among of this question stated that “The contractor is not entitled for any time or cost if the Employer/Consultant delay is equal or less than the contractor delay”. This option was phrased in this way to refer to the effective cause of delay approach. In other words, the contractor will not be entitled to an *EOT* if he was effective cause of delay was attributed to him. This option was chosen by 10% of the respondents only.
- 2) Whereas the *SCL protocol* states that there are two methods upon which the concurrency will be decided as mentioned in Chapter II, the “effective cause of delay” approach was the one to be recommended.

In view of the above, the *FIDIC 2017 red book* recommendation for dealing with concurrency might not be the ones favored or adopted by the majority of the construction professionals who participated in the survey. Moreover, the adoption of such method as discussed in the literature review might be encountered by certain articles in the *CTC* such as article 290 and 291. Another possible alternative will be the use of apportionment approach for the case of concurrency or adopting the first position by the *SCL protocol*. Such alternative will not be in total contradiction with *FIDIC 2017 red book* as there is some contractual ground to use the apportionment method as can be inferred from Sub-Clause 17.2[Liability for Care of the Works] discussed earlier.

Supplementing the contract with *EOT* evaluation standard code of practice such as the *SCL protocol* was not the only thing that was found to be a recommended practice by the respondents of the survey while being an addition provided by *FIDIC 2017 red book*. The respondents also stated that having such time-framed procedure for reaching an agreement prior to making an *EOT* determination will also help in reducing the *EOT* entitlement disputes. However, such timeframe agreement process might be prolonging the *EOT* determination process which imposes risk on both contract parties, especially for the contractor. This has been reflected in the answer of another significant portion of respondents (27%) who were of the opinion that such process will not be needed if there is a well-defined *EOT* evaluation procedure in place.

Chapter Six

6. CONCLUSIONS & RECOMMENDATIONS

6.1 Conclusions

This study was aimed at evaluating the suitability of *EOT* procedure introduced by *FIDIC 2017 red book* to be adopted instead of the ones introduced by the previous *FIDIC* edition under UAE law. This study was completed with several conclusions in regards to *EOT* under UAE law, *FIDIC 1999* and *FIDIC 2017 red books*.

6.1.1 UAE Law and EOT

It has been established that there is the need for contractual provision that grants *EOT* upon the occurrence of certain situations. This need has been already acknowledged and well defined by the English law with numerous amounts of case-laws that supports the entitlement evaluation process whether under the project or when it is escalated legally. The case under UAE *CTC* was found to be a bit different as the ground for establishing *EOT* entitlement would be inferred from UAE *CTC* articles rather than being clearly stated. This is evident in Article 875 UAE *CTC* under the *Muqawala* which indicated that in construction contract time for performing the contract is indeed of an essence, and subsequently as a general rule it will not be permitted to modify such agreement. However, other articles could also be interpreted in a way that implies the contractor's entitlement for an *EOT* if the delay was not attributed to his own act, as in the case of *Muqawala* article 894 or other articles such as articles 247, 249, 287, 414, and 472. This interpretation was proven by several UAE case-laws presented in the earlier part of the dissertation.

As it appeared from case law and *CTC* articles, the contractor may be able substantiate an *EOT* claim under similar basis found in the *FIDIC red books*. However, the law does not mandate any clear principle to evaluate any alleged impact of claimed delay events or decided on total float ownership and it will be to the court appoint expert to decide on which method to use shall the dispute be escalated to take the court litigation path. The case of concurrent delay suffers from a similar limitation with the exception that there would be alternative *CTC* articles and previous ruling that could be referenced with claiming an *EOT* under this case. For example, while evaluating the *EOT* contractor's entitlement in the case of concurrency, *CTC* article 290 and 291 could be referenced when using the apportionment approach or the ruling in case 344 of judicial

year 19¹³⁰ when using the effective cause of delay approach. While having a properly drafted contract or a comprehensive standard form may imply a resolution for some of the issue of *EOT* entitlement, other *bespoke* contracts, especially the ones drafted for relatively small size of projects, will still be subject of significant amount of *EOT* disputes should there be no provision in the law to decide on these matter.

6.1.2 EOT Under FIDIC Red Books

Being the most widely used standard form of contract, the study has reviewed thoroughly the *EOT* procedure mandated by both *FIDIC 1999* and *2017 red books*. It was noted that the process in both edition of *FIDIC red books* is composed of three main steps. The first one is to establish the contractual ground for the *EOT* in reference to the *FIDIC* relevant sub-clauses. This also implies establishing the causality between the claimed delay event and the contractual ground. The second step is to comply with submission procedures explained in the *FIDIC*, including the notification procedure and submission timeframe. The last step would be the evaluation by the engineer that will be concluded with an agreement between the contract parties or a recommended determination for the *EOT* submission. After reviewing the *FIDIC 1999 red book EOT* related sub-clauses, it can be noted that in the general principle, the contractual ground for claiming *EOT* is similar to the ones being claimed under UAE *CTC*. The advantage of using *FIDIC 1999*, however, would be by the detailed *EOT* framework it provides that should make the contractual substantiation of the *EOT* claim subject to less dispute over entitlement. The results of the survey conducted among construction professionals show that such objective is not met entirely and disputes over multiple *EOT* issues such as establishing the causation between the delay and impact, selection of impact analysis method, analysis of concurrency or total float ownership. On the other hand, *FIDIC 2017 red book* was found to be touching upon several of these issues by adopting approaches that were favored by most of the survey participants. The two main additions made by *FIDIC* to new edition of the *red book* and found to be agreed upon by the majority of the survey participants were the suggestion of using the *SCL protocol* for evaluating the *EOT* impact analysis and the introduction of time-framed procedure to reach an agreement prior to make an *EOT* entitlement determination. This has also found true for the case of total float ownership since the position adopted by the

¹³⁰ Supreme Court – Case 344 for Judicial Year 19 – 23rd Jan 1999

majority of the respondents' is in conformity with the position taken by the *SCL protocol* for the same matter.

On the other hand, for the case of concurrent delay evaluation, the construction professionals participating in the survey were adopting a view similar to one of the two positions taken by the *SCL protocol* for the same matter. The highest majority of the participants in the survey were of the opinion that concurrent delay should always entitle the contractor for an *EOT* without cost compensation whereas the second majority was of the opinion that cost could be also claimed in the case of concurrency. The effective cause of delay approach proposed by the *SCL protocol* was not chosen by a significant majority in the survey. In the same context, the *FIDIC 2017 red book* was found to be falling in the similar conflict of correct method to be used to determine an *EOT* entitlement in the case of concurrency. This was evident when proposing the to use the *SCL protocol* by the *FIDIC* particular conditions guidance section when evaluating the *EOT* entitlement under Sub-Clause 8.5 [Extension of Time for Completion], whereas Sub-Clause 17.2 [Liability for Care of the Works] provides an indication of adopting the apportionment approach rather than proposed *SCL* effective cause of delay approach. The same thing was found between UAE case law and *CTC* article 291 as discussed earlier. Hence, certain precautions should considered if decided to use the *FIDIC 2017 red book* as a standard form of contract for construction projects in UAE as highlighted in the recommendations section below.

6.2 Recommendations

In view of all the literature review, survey results, and discussion made in the earlier section, if a decision is made to adopt the EOT approach provided in the *FIDIC 2017 red book*, it would be advisable to consider the following:

- 1) The method of choosing a delay impact analysis technique should be clearly stated in the contract. If contracting parties have chosen to follow the suggestion of *FIDIC* and adopt the *SCL protocol* for carrying out this task, then such rules are already mentioned there. Otherwise, a clear specification for the impact analysis technique should be stated in the contract and it is recommended to choose the TIA method based on the result obtained from the survey. In this case, it will also be advisable to set rules for applying the TIA method in the particular conditions, or refer to an acceptable standard practice such as the AACEI Recommended Practice 52R-06.

- 2) The *SCL protocol* also specifies the rules for determining total float ownership. Therefore, if reference is made to the *SCL protocol* in the contract, then the total float ownership is already covered in a way that conform with the majority of the survey respondents' feedback in which the total float will be determined on a "first come first served" bases. Otherwise, the contract particular conditions should specify a clear approach for total float ownership.
- 3) The apparent discrepancy for concurrent delay determination between the effective cause of delay approach specified by the *SCL protocol* under Sub-Clause 8.5 [Extension of Time for Completion] and indication of the apportionment approach Sub-Clause 17.2 [Liability for Care of the Works] should be also modified to be a consistent method in both Sub-Clauses. It would be recommended to resolve the issue by choosing the apportionment approach to be also consistent with the UAE *CTC* article 290 and 291.
- 4) It would not be advisable to over-write the general conditions through the particular conditions in a way that could be considered remarkably imbalanced as it might be considered as an adhesion terms that the Judge may adjust under *CTC* article 248.

It is also recommended to provide a legal framework for deciding on *EOT* main issues of disputes such as impact analysis method or entitlement under concurrency, should the contract be silent in this regard. This could be achieved by carrying out an amendment to the *CTC Muqawala chapter* or issue a clarification one how to deal with these issues under the existing *CTC* articles, similar to the clarification made by the Ministry of Justice explanatory memorandum.

Chapter Seven

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