The Applications Of The Variation Clauses Of The FIDIC Red Book 1987 And 1999: Analytical And Empirical Study Under the UAE Law

التطبيقات العملية لبنود التغيير الخاصة بعقد فيدك الكتاب الاحمر 1987 و 1999: دراسة تحليلية ورقمية وفقا لقانون دولة الامارات العربية المتحدة

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Abstract

Usually, the variation provisions in standard construction contracts are well drafted in a careful and precise manner. These provisions are built up with accurate and unequivocal wordings which preclude any ambiguity/ uncertainty/ doubt in the interpretations of the variation provision terms. Such steps enhance the efficiency of the variation provisions and participate effectively to minimize or avoid complications/ potential claims/ vigorous disputes. One of the major sources for disputes between the employer and the contractor is the variation claims which are resulted from the interpretations and applications of the variation provisions in the construction industry.

The dissertation aims to execute clinical analysis in the variation provisions of the FIDIC Red Book 1999 and compare them to their counterparts under FIDIC Red Book 1987. The research investigates whether the variation provisions of the FIDIC Red Book 1999 represent improvements and provide better efficiency over their counterparts under the FIDIC 87. The hybrid methodology which compromises of survey and interviews with senior experts, in addition, library works are adopted in this research. Furthermore, numerical example is utilized to illustrate the evaluation mechanism under the variations clauses.

The results of the research provide that some changes under the variations provisions of FIDIC Red Book 1999 are featured with unique and interesting points which were not existed under the FIDIC 87, but some other changes are highly doubtable and debatable. The consequences of the applications of these provisions are likely to have adverse effects in construction field as detailed in the research.

To conclude, this study presents a message to FIDIC draftsmen to take into account the issues which are produced under this research for future revised versions with improved quality of variation provisions. Meanwhile, this research would be of much interest to judges, arbitrators, and lawyers. Also, the contracting parties would benefit from such anatomical interpretations in order to avoid potential contentious in future.

الملخص

عادة، يتم صياغة بنود التغيير في عقود الانشاء والبناء بطريقة دقيقة وعناية حذره. وتصاغ هذه البنود بطريقه صحيحة وجليه لتمنع اي لبس اوشك في تفسير هذه البنود. هذه الحظوة تعزز فعالية هذه البنود وتشارك بشكل فعال في التقليل او الحد من الخلافات والمنازعات القوية المحتملة بين الاطراف المتعاقدة. واحد من المصادر الرئيسة للخلافات بين رب العمل والمقاول هو الدعاوى المتعلقة ببنود التغيير والتي تنتج عن التفسير والتطبيقات لبنود التغيير في أعمال البناء والانشاء.

تهدف هذه الدراسة إلى التحليل الدقيق لبنود التغيير في كتب عقود الفيدك (الكتاب الأحمر 1999 و1987) وعمل مقارنة بينها. هذا البحث يحقق فيما اذا كانت بنود التغيير الخاصة بكتاب فيدك الأحمر 1999 تشكل تطور في صياغتها بالمقارنة مع نظيراتها الخاصة بكتاب فيدك الأحمر 1987. اعتمد هذا البحث على طريقة النهج المهجن والتي تتكون من استبيان ومقابلات مع الخبراء الرئيسيين بالإضافة إلى التعرف على كيفية تعامل المحاكم والقوانين المختلفة في القضايا التي ممكن ان تنتج من التطبيق العملي لبنود التغيير. أيضا تم استخدام مثال رقمي من اجل توضيح آلية التقيم التي تعمل بها بنود التغيير.

بينت نتائج البحث ان بنود التغيير الخاصة بكتاب فيدك الاحمر 1999 قدمت خصائص نادره ومميزه ولم تكن موجوده بكتاب 1987، ولكن بعض بنود التغيير كانت موضع قوي للشك والنزاع وتطبيق هذه البنود ممكن ان يكون له تأثيرات سلبية في حقل البناء والإنشاء.

بالنتيجة، تقدم هذه الدراسة رساله الى صائغي عقود الفيدك من اجل ان يأخذوا بالحسبان القضايا التي انتجتها هذه الدراسة في الطبعات المعدلة المستقبلية حتى تصاغ بنود التغيير التعاقدية بشكل نوعي افضل. وفي نفس الوقت، ستشكل هذه الأطروحة موضع تشويق واهتمام كبير للقضاة، المحكمين، المحامين، والاطراف المتعاقدة حيث سيتم الاستفادة من التحليل التفصيلي لبنود التغيير من اجل المساهمة بتقليل النزاعات بين الاطراف المتعاقدة.

Dedication

I would like to dedicate this research to the soul of my father (May Allah shower him with mercy). Also, to my beloved mother for her continued prayer for me, and my brother Daou'd and all of my family for their unlimited and generous support.

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Beaufort Developments (NI) Limited v Gilbert-Ash (NI) Limited and Others [1998] 2 All ER (HL) 778

Davis Contractor Ltd v Fareham Urban District Council [1956] 2 All ER 148 HL

Arcos Industries v Electricity Commission Of New South Wales (1973) 2 NSWLR 186 12 BLR 65

Wilson v Wallace [1974] 3 SA 506

Sharpe v San Paulo Railway (1873) LR8 Ch. App. 597

Kemp v Rose [1858] 114 RR429; (1858) 65 ER910

Patman and Fotheringham Ltd. v Pilditch (1904),

Alfred McAlpine v Transvaal Provincial Administration (TPA) 1974 (3) SA 506 (A),

Sir Lindsay Parkinson & Co Ltd v Commissioners of His Majesty's Works And Public Buildings [1949] 2 KB 632; [1950] 1 All ER 28

Melbourne Harbour Trust Commissioners v Hancock [1927] HCA 26; (1927) 39 CLR 570

Blue Circle Industries PLc v Holland Dredging Company (UK) Ltd (1987)37 BLR 40

Costain Civil Engineering Ltd v Zanen Dredging and Contracting Co Ltd (1996)

McAlpine Humberoak v McDermott International [1992] 58 BLR 1

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Abbreviations

FIDIC	The International Federation of Consulting Engineers (Federation Internationale des Ingenieurs Conseils
FIDIC 99	Conditions of Contract for Construction for Building and Engineering Works Designed by the Employer. (Commonly referred as the FIDIC Red Book 1999)
FIDIC 87	Conditions of Contract for Works of Civil Engineering Construction – 4th edition (Commonly referred as the FIDIC Red Book 1987)
CTC	UAE Civil Transaction Code, Law number 5 of 1985
JCT	Joint Tribunal Contracts
UAE	United Arab Emirates
TOC	Taking Over Certificate
EOT	Extension Of Time
NEC	New Engineering Contract

Chapter 1 Introduction

Most construction contracts, such as JCT, FIDIC, and NEC, are featured with variation clauses incorporated into their terms and conditions. This can be due to the characteristic and the nature of the construction project, such as, complexities, involvement of several stakeholders, and construction of large scale project which requires long time for completion. Consequently, it can be virtually inevitable to execute construction project without carrying out changes (variations) to the original works under the contract, even in the most detailed scopes of works.

Variation provisions regulate the evaluation process for varied works whereby each party may attempt to increase his benefits and avoid or minimize his losses. These provisions determine clearly the allowed variations and identify the circumstances[1] by which the contractor will be eligible for the payments/ EOT of these variations. Furthermore, variations may affect the contract price, progress of the works and the time for the completion.

Most of the disputes between the employer and the contractor arise out of the applications of variation clauses in the construction industry[2]. For example, claims related to issues whether the instructed works entail the contractor for variation order, and whether such instructions depart from the original contracted work to be separate agreement. In addition to the question that whether the instructed works entitles the contractor for additional payments. At the end, the contentions between the disputing parties can be referred to the dispute resolution methods stated in the contract which may include the Dispute Adjudication Board (DAB), arbitration, and litigation.

Usually, the variation provisions in the standard construction contracts are well drafted in a careful and precise manner. These provisions are built up with accurate and unequivocal wording which preclude any ambiguity/ uncertainty/ doubt in the interpretations of the variation provision terms. Such steps enhance the efficiency of the variation provisions and participates effectively to minimize or avoid complications/ potential claims/ and vigorous disputes. Furthermore, experts who are well versed in construction law are invoked in this process to produce variation clauses of high quality.

[1] Philip C F Chan, *"Change And Related Costs Management – Some Observations From Singapore"* The International Construction Law Review (2005)
[2] John Dorter, "*Variations*", Building And Construction Law Journal (September, 1990) (BCL),

Administering variation clauses which are not worded adequately will lead to broad interpretations in the terms and wordings of these provisions. Failing to resolve such different interpretations amicably or by the DAB, then arbitration or litigation will be sought as the final destination.

1.1 Research Issue

The FIDIC Red Book 1999 "briefed as FIDIC 99" FIDIC 99 was issued in 1999 to replace[3] the previous version; the FIDIC Red Book Forth Editions 1987 "briefed as FIDIC 87". Therefore, the variation provisions of the FIDIC 99 are the update version of their counterparts of the FIDIC 87. Having examined these provisions, it can be found that some variation clauses under FIDIC 99 are analogous to their equivalents under FIDIC 87, but re-arranged with different number. Other clauses show new significant requirements. Also, there are some changes in the wording, clarity, and the precision of these provisions.

The research carries out anatomical interpretations and sensitive analysis in the variation clauses of the FIDIC 99 and compares them to their counterparts under the FIDIC 87. Furthermore, the argument explores the views of various jurisdictions, including UAE law, in dealing with the disputes that may arise out of the interpretations and applications of the variation provisions in the construction industry.

1.2 Research Justification

The most commonly used standard form of contract for the construction industry globally[4] and in UAE[5] is the FIDIC Red Book. The FIDIC Red Book is a measurement contract and used for constructions works where the responsibility of the design belongs to the employer[6]. In Dubai, it can be seen that a wide range of organizations, such as; Dubai Municipality, FIDIC 87 are still in use, but with amendments, since the early 1980's, however, tendency to move towards FIDIC 99 has already been witnessed. Abu Dhabi government adopted FIDIC 99, albeit with changes, to be the government standard form of contract through law number 21 of 2006 which was issued by Abu

[3] Hok, Stieglmeier *"The FIDIC Red Book "Harmonized Version" As A Variation Of The FIDIC Red Book 1999 And The Standard Bidding Formulas Of The World Bank Bidding Documents 2005"* (2006) The International Construction Law Review
[4] David Savage, *"The Top 10 Things You Need To Know About FIDIC"*, (June 2012) Charles Russell
[5] Jeremy Glover, *FIDIC An Overview: The Latest Developments, Comparisons, Claims And A Look Into The Future*, (September 2008) Fenwick Elliott
[6] Brian W, Totterdill, *FIDIC User's Guide: A Practical Guide to the 1999 Red Book*, 2006

Dhabi Executive Council[7]. For example, Abu Dhabi Municipality is in use of FIDIC 99 since 2007. As a result of this transition phase, the familiarity of the construction industry in UAE with the FIDIC 99 clauses, including the variation provisions, may still not be matured enough when compared to their counterparts under FIDIC 87. In addition, it may not be practicable to continue using both versions; FIDIC 99 and FIDIC 87, since the contracting parties are required to be knowledgeable of two different versions[8], especially for variation claims. It would be interesting to know how these clauses will work in practice.

1.3 Research Objective

The objective of this research is threefold:

1. To investigate in depth the quality and adequacy of the variation provisions of FIDIC 99 and asses the likely impacts of their applications in the construction industry in the UAE.

2. To identify any traps/ pitfalls in the variation provisions of FIDIC 99 which can be arguable and debatable taking into account the attitude of the jurisdictions/ courts in the interpretations of these variation clauses. Consequently, this research seeks to enhance the experience and the knowledge of the construction society in administering these provisions, in addition to suggesting solutions to override/ avoid these pitfalls/ misinterpretations.

3. To explore perceptions of the senior experts and views of the key stakeholders of the construction industry in the UAE, and their satisfactions whether the variation provisions of the FIDIC 99 meet their expectations as an updated version of the FIDIC 87.

1.4 Research Question

Do the variation provisions of the FIDIC 99 represent improvements and provide better efficiency over their counterparts under the FIDIC 87?

[7] Abu Dhabi Law Number 21 of 2006 issued by Abu Dhabi Executive Council
[8] Hok, Stieglmeier *"The FIDIC Red Book "Harmonized Version" As A Variation Of The FIDIC Red Book 1999 And The Standard Bidding Formulas Of The World Bank Bidding Documents 2005"* (2006) The International Construction Law Review

1.5 Research Scope

The scope of work of this dissertation is limited to variation clauses under FIDIC 99 and FIDIC 87. Law provisions and legal cases from UAE and worldwide are embedded throughout this discussion to explore the applications of these clauses in the construction industry. Views of the construction professionals were sought through a survey. Interviews were conducted with the most senior experts from the construction industry. Evaluation of variations was exemplified by numerical calculations to illustrate the consequences of these variations.

1.6 Research Significance

There is no or lack of court judgments on testing the variation provisions of the FIDIC 99. Therefore, this research has special significant as it could provide an appraisal of these variation provisions. It will illustrate the pitfalls/ gaps existing in the variation provisions taking into account the interpretations of the judges/ arbitrator to the variation terms, and demonstrate the key issues which may arise out of the applications of these clauses in the construction industry. Consequently, this research should be of much interest to judges, arbitrators, lawyers and will, also, provide a practical guide to the contracting parties. Furthermore, it may participate in reducing undue complications, debates, and disputes by avoiding the misinterpretations of these contractual provisions and administering them smoothly.

1.7 Research Structure

In addition to this introduction chapter, the milestone structures of this dissertation are as follows:

Chapter 2 highlights a comprehensive overview over the importance, pros and cons, procedural requirements of the variation provisions in the construction field.

Chapter 3 presents the methodology adopted in this research to achieve the set out objectives.

Chapter 4 demonstrates data analysis overview which introduces the slices of the construction professionals who participated in the survey and the interviews.

Chapter 5 addresses and provides comparative analysis over the issues which may arise out of the interpretations and applications of clauses 13.1 *"Right to Vary"*, 13.2 *"Value Engineering"* and clause 13.3 "*Variation Procedure"* of FIDIC 99.

Chapter 6 addresses and provides a comparative analysis of the issues which may arise out of the interpretations and applications of clause 12.3 *"Evaluation"* of the FIDIC 99.

Chapter 7 provides conclusions and recommendations.

Chapter 2 Overview of Variations in The Construction Field

Chapter 2 highlights a comprehensive overview over the importance, pros and cons, procedural requirements of the variation provisions in the construction field.

2.1 Introduction

Usually, the variation clause in construction contracts is a mechanism by which the employer or his agent is unilaterally empowered to vary the works by a way of additions, omissions, or modifications without the consent of the other party. Such principle is provided in FIDIC 99 clause[9] 13.1 which provided that variation may be initiated by the engineer at any time prior to issuing Taking Over Certificate (TOC) for the works either by an instruction or by requesting proposal from the engineer.

Contract is legally binding documents[10] and no changes will be allowed to it. But, it is important to distinguish that what can be varied is not the contract itself[11] (contract terms and conditions), but the works under the contract as held in *D&C Building v Rees*[12]. This aspect of variation is restricted expressly under clause 3.1[13] of FIDIC 99. This clause concluded that the engineer does not have authority to amend/ modify the contract unilaterally[14]. Therefore, no variation can be done on the contact documents which defined under clause[15] 1.1.1.1 as: contact agreement, letter of acceptance, letter of tender, contact conditions, specification, drawings, and schedules.

2.2 Variation Definition

There is more than one meaning for the variation. It can be any change to what is agreed and stated in the contract. It can be any change to the work itself, such as change to

[9] Clause 13.1, FIDIC 99
[10] Elizabeth Martin and Jonathan Law, Oxford Dictionary Of Law, 7th edn, Oxford University Press, , 2009),
[11] Reg Thomas, *"Construction Contracts Claim"*, (2nd edn, Palgrave, New York 2001)
[12] *D&C Building Ltd v Rees* [1965] 3 All ER 837, illustrated clear attempt by the defendant's wife to change the contract terms which determined the contract price and changed from 482 to 300 sterling pounds. The court held that such variation to contract was not allowed and the claimant entitled for full payment.
[13] Clause 3.1 *"The Engineer shall have no authority to amend the contract"*
[14] Hok, Stieglmeier *"The FIDIC Red Book "Harmonized Version" As A Variation Of The FIDIC Red Book 1999 And The Standard Bidding Formulas Of The World Bank Bidding Documents 2005"* (2006) The International Construction Law Review
[15] Clause 1.1.1.1 of FIDIC 99

design, work specifications, working conditions, access to site condition[16]quantity and quality of the work, and it can be in the form of additions, omissions or substitutions. Also, the variation can be applied through carrying out the work with different work method from the one stated under the contract[17].

FIDIC 87 clause 51.1 provides that the variation can be "any change to the form, quality, or quantity of the work, level, additions, omission, and changes timing/ sequence of the work" [18]. Also, FIDIC 87 provides another definition for variations in a term so-called "*varied works*" which refers to all changes which are changes other than the changes listed under clause 51.1. FIDIC 99 clause 1.1.6.9 defines the variation as any change to the works instructed or approved as a "*Variation"* [19]. This unified definition is considered as a constructive feature for the FIDIC 99, not only when compared with FIDIC 87 but, also, with other forms of contacts. This gives the variation provision broader dimensions to the variations and participates to clear ambiguities and avoids disputes[20] concerning the meaning of the variation. Also, FIDIC 99 clause 13.1*"Right To Vary"* provides a wider definition that includes the physical works and all the activities necessary to finish the project[21].

Under UAE law, Article 267 of the CTC[22] stipulates that it is not allowed to either party to vary the contract except by mutual consent or an order of the court or under statutory provision. However, from the UAE law, Article 887(2) of the CTC[23], it can be concluded that the unilateral empower to vary the works is legal, as the variation order is taken under the performance of the variation clause and the variation clause is part of the existing agreement by which the parties have already given their consent to in advance. Also, the UAE court stated that the variation can be positive or negative[24].

[16] Murdoch J and Hughes W, *"Construction Contracts Law and Management"* (4th edn, Taylor & Francis, Oxon 2008)
[17] Uff J, *Construction law*, (10th edn, Thomson Reuters, London, 2009)
[18] Clause 51.1, FIDIC 87
[19] *FIDIC Red Book* (5th edn, 1999), clause 1.1.6..9 "Variation: means any change to the Works, which is instructed or approved as a Variation under clause 13 [Variations and adjustments]."
[20] Ajantha Premarathna, *"is FIDIC-99 Contracctor Friendly?"* SLQS Journal, September 2009
[21] Simon loft QC, Atkin Chambers, , *Valuation Under FIDIC And Finding An Acceptable Arbitrator To Determine Disputes*, (6 October 2010) London.,Talk For Society Of Construction Law
[22] Article 267, of CTC *"If the contract is valid and binding, it shall not be permissible for either of the contracting parties to resile from it, nor to vary or rescind it, save by mutual consent or an order of the court or under a provision of the law"*
[23] Article 887 of CTC
[24] Union Supreme Court, 442/2004

2.3 Absence Of Variation Provisions

Variation provisions in construction contracts are essential features, as without such provisions, it would be impossible to change or omit any part of the original work under the contract unless both parties agree on such changes. If there is no variation provision in the contract, the engineer will be prevented from instructing variations. But if engineer still insists to order variation, the contractor can refuse to perform such variation as illustrated in *Ettridge v Vermin Board of the District of Murat Bay*[25]. In that case there was no variation provision under the contract, however, the employer instructed the contractor to build fence in some areas which were different from those specified in the contract. It was held that the contractor had the right to refuse perform such work which was not changes to the original work, and the employer was in breach of contract when he withheld payment due to the contractor for the work executed under the contract. Similar judgment was held in *Ashwell Nesbitt v Allan*[26].

However, where no express provision for variation, it would be possible for the employer and the contractor to mutually agree on incorporating a variation provision into the existing contract or to have a separate agreement to prescribe such variation, its work, time and cost[27]. However, the contractor will find himself in a stronger position to depart from the prices set out in the contract and negotiation new prices with the employer, as demonstrated in *Wren v Emmett Contractors*[28].

2.4 Pros of Variations

Variation clause enables the employer to carry out any necessary changes to design/ specifications that may be required during the course of the contract. For example, design changes[29], design faults and errors, additional, modified drawings, instructing additional tests to be done. This clause provides sort of comfortable, convenient and flexibility for the employer to focus on the project and if any uncontrollable issue is encountered, it can be coped with variations. For instance, unforeseen physical conditions, weather conditions, legislation changes, force majeure. Variation clause

[25] *Ettridge v Vermin Board of the District of Murat Bay* (1928) SASR 124, 131
[26] *Ashwell Nesbitt v Allan & Co (1912)* Hudson's Building Contracts
[27] Adriaance J, *Construction Contracts Law*, (3rd edn, Palgrave Macmillan, London, 2010)
[28] *Wren v Emmett Contractors Pty Ltd* (1969) 43 ALJR 213 at 216.
[29] Adriaance J, *Construction Contracts Law*, (3rd edn, Palgrave Macmillan, London, 2010)

allows the contractor to submit proposal for value engineering[30]. Also, it may allow changes regarding shortage or non-availability of certain material or personnel of the contractor. Variation allows dealing with situation where the engineer/ the contractor lack the experience in procurement procedure, such as procurement of long lead items, cooperation/ liaison of the contractor with other contractors and employer's staff.

Variation participates to improve the optimization between cost, function and quality of the project and best utilization of the resources[31]. It allows cutting down the unnecessary expenses by using different type of material, different quality/procedure or by applying new technology. It improves constructability and durability of the project, and applies better quality. Variation provides mechanism to overcome the constructive changes, for example, interpreting/ correcting any discrepancy or error in the contract documents. Variation provides mechanism to apply prices/ rates set out in the contract and allow adjusting the contract price and time for completion. Consequently the employer will avoid re-negation the contract and its prices and rates. Furthermore, by the variation mechanism, the contractor will be able to claim the costs and expenses he incurred as a result of such varied works[32].

2.5 Cons of Variations

The engineer may decide and instruct lately on the variation which may affect adversely the planned construction program, and cause disruption of works. The variation may require reconstruction/ demolition part of work, or use new material, new drawings for the variation works[33]. The rate of the items under instructed works can be increased as result of variations; this will be due to additional charges to the delay works or as per the evaluation mechanism stipulated in the contract. Consequently, this may lead to increase the total contract price and overall cost, moreover, affect the performance of the project, and delay the time for completion[34]. This provision may enable the contractor to claim for prolongation costs/ additional payment/ EOT[35]. If the quantity of an item is changed dramatically, this most probably will lead to slow the progress of the

[30] Clause 13.2, FIDIC 99
[31] Murdoch J and Hughes W, *Construction Contracts Law and Management* (4th edn, Taylor & Francis, Oxon 2008)
[32] *Knight Gilbert Partners v Knight* (1968) All ER 248
[33] Adriaance J, *Construction Contracts Law*, (3rd edn, Palgrave Macmillan, London, 2010)
[34] Ibid
[35] A.-V, Jaeger and G.-S. Hok, *FIDIC - A Guide For Practitioners springer*-Verlag Berlin Heidelberg 2010

work, and the unite rates will be changed more than the contracted ones. The quality and productivity of the work can be affected, as the contractor may incur expenses, and the contractor may provide poor quality to compensate his losses [36]. Changes/ replacements to material and equipment may require new considerations for health and safety. Final account may remain open and cannot be finalized even after putting the project in use, which is the inconvenient thing; the employers do not want to happen. The contractor will be in breach of contract, if he does not comply with the variation instructed.

The engineer may provide tender drawings which are insufficient and unclear during tendering stage, in order for him to instruct variation to reveal his initial intention by benefitting from the lower rates of the contractor which are less than the actual cost. If the contractor is awarded a contract with higher rates more than the actual market cost price, he can benefit from his higher prices quoted in the contract and seek such higher prices via variation claim. On the other hand, if the contractor quoted lower price during the tender, he could develop argument that the instructed work construes additional works or outside the work in order to depart from the lower prices specified in the contract [37]. Furthermore, the contractor may refuse to carry out variation for valid reason, but the engineer still insists on this position. Consequently, the parties may find themselves in dispute as a result of existing ambiguities/ uncertainties in the language of the variation clause.

2.6 Variation Contractual & Procedural Requirements

The engineer, usually, issues written documents called variation or change order to the contractor instructing him to carry out varied works. FIDIC 99 clause 3.3 states that the engineer's instruction must be in writing and in a prescribed manner[38], however, if the engineer desires to make immediate change to the work which cannot be awaited till the written instruction is being issued, the engineer may issue oral instructions. The contractor must comply with the any instruction from the engineer whether written or oral instruction[39]. But he shall send written confirmation to the engineer within two working days informing him that these oral instructions construe variation. If the

[36] Adriaance J, *Construction Contracts Law*, (3rd edn, Palgrave Macmillan, London, 2010)
[37] Uff J, *Construction law*, (10th edn, Thomson Reuters, London, 2009)
[38] Clause 3.3 "Instruction of The Engineer"
[39] Brian W, Totterdill, *FIDIC User's Guide: A Practical Guide to the 1999 Red Book*, 2006

engineer fails to respond within the specified time, this will construe a writing instruction. It should be noted that the instruction for variations will be issued by the engineer and not from the employer. But if the employer instructs directly the contractor to execute variations, the contractor must have these instructions written prior to perform the variation[40]. The contractor is required to acknowledge receipt of variation instruction.

Some of engineer's instructions are to illustrate what the contractor has to do, though such instruction may include some additional or omission works, but, such changes are fallen under the contractor's contractual obligations[41]. Whereas the contractor may consider these instructions to be additional works entitle him for additional payment. Therefore, written confirmation is important in order to make the engineer aware that such oral instructions will lead to extra payment/ EOT. Consequently, it will enable the engineer to decide whether or not to go ahead with the variation as held in *Wormald v Resources conservation*[42].

If there is no such procedure, the contractor will be in dilemma. He will be confused whether to proceed with the work or not. And, his claim for the costs of executing changes without confirmation from the engineer will be rejected. Also, this procedure is important for the engineer to control effectively the technical and commercial aspects of the project[43]. If the contractor did not comply with this contractual procedure, he might loss his entitlements for money/ Extension Of Time (EOT). Such entitlement depends on the interpretation of the contract, and whether the written notice is a condition precedent. In *District Road Board of Broadmeadows v Mitchell*[44] the contract provided that the variation would not be allowed or paid unless the engineer issued such variation in writing. It was held that in the absence of written instruction, the contractor

[40] Glover, Jeremy, Simon Hughes "*Understanding the new FIDIC red book: a clause-by-clause commentary*", 1st edn, Sweet & Maxwell, 2006)
[41] Adriaance J, *Construction Contracts Law*, (3rd edn, Palgrave Macmillan, London, 2010)
[42] *Wormald Engineering Pty Ltd v Resources conservation Co International* (1992) 8 BCL 158 the contractor did not send written notice to the engineer claiming additional payment associated with variation. It was held that the contractor claim was unsuccessful as the written notice was part of the contractual obligation of the contractor who did not comply with it. Such notice
[43] Brian W, Totterdill, *FIDIC User's Guide: A Practical Guide to the 1999 Red Book*, 2006
[44] *District Road Board of Broadmeadows v Mitchell* (1867) 4 WW & A'B (L) 101 (FC)

had no entitlement for payments. Also, in *Tharsis & Copper v M'elvoy*[45] similar judgment was held[46]. If the engineer instructed orally to perform additional work, and the contractor performed such instruction without confirmation in writing, this would not by itself enable the contractor to claim extra payment as what happened in *SC Taverner v Glamorgan Country Council*[47] .

[45] *Tharsis Sulphur & Copper Co v M'elvoy & Sons* (1878) 3 AC 1040 where the contract stated that variation instruction must be only in writing, the contractor should not be entitled to make variations. It was held that no entitlement for payment as there was no written instruction.

[46] Lord Blackburn stated *"It is common enough to have provisions, as these are here, more or less stringent, saying that no extra work shall be paid for unless it is ordered in writing by the engineer, and if such conditions are properly made, and there is nothing fraudulent or iniquitous in the way they are carried out, these conditions would be quite sufficient and effectual"*

[47] *SC Taverner & Co Ltd v Glamorgan Country Council* (1941) 184 LT 35.7

Chapter 3 Methodology

Chapter 3 presents the methodology adopted in this research to achieve the set out objectives.

3.1 Methodology Selection & Justification

A hybrid method is thoroughly adopted throughout this dissertation. This method includes collaboration between quantitative and qualitative approaches. Such strategy is useful to furnish a wider range of views and insights, and overcome the gaps of conducting one approach, quantitative or qualitative, alone without correlation with the other approach.

The quantitative approach is required in this study, as its purpose is to explore the perceptions of the professionals of the construction industry towards the variation provisions of the FIDIC Red Book 1987 and 1999. Another purpose is to measure the reactions of the professionals towards the applications of the variation clauses against particular issues, such as omission and accelerations. Further, this approach quantifies the number of each party participated in the questionnaire and identifies which clauses are preferable to a party more than the other one without biases and away from the subjectivity.

The qualitative method is applied to serve its purpose by providing further discussions and investigations over the findings obtained from the survey through carrying out interviews with the most experienced professionals from the construction field. Also, certain results of the survey were not clear enough, therefore, it was necessary to conduct these interviews in order to triangulation and confirmation of these results, and enable to have more objective findings.

Moreover, it was essential for this argument to have a look at different jurisdictions and legal cases from UAE and worldwide in order to explore how these jurisdictions interpret the variation clauses and handle the issues arise out of the applications of these clauses.

3.1.1 Quantitative Method

A draft survey consisted of 23 questions were sent to several professionals in order to provide their comments which were incorporated into the questionnaire. The first part

of the questionnaire enquired general information about the respondents. The participant was asked to select which one of the construction stakeholders describes his work experience, number of years of his experience, the rating of his understanding to the parties' roles and obligations under the FIDIC 99. The second part of the questionnaire compared the variation provisions of the FIDIC 99 and FIDIC 87, and requested the participant to provide his perception in the forms of multiple choices from five possible answers; strongly agree, agree, neither agree nor disagree, disagree, strongly disagree. The third part investigated the satisfactions of the participants to the variation evaluation provisions. In the last part of the survey, the participant was requested to select his preference whether to use the variation provision under FIDIC 99 or their equivalents under FIDIC 87.

The online survey which was selected to carry out the questionnaire is *"eSurveysPro"*. This website has important features such as: fast in collecting data, easy to use, professional, low cost, and view the results in real-time. The data was exported to Excel tool where it was processed and analyzed critically to achieve the purpose of this study. The Survey duration lasted for one month, it floated to the market on 21 November 2013, and closing date was 21 December 2013. The questionnaire targeted the selective professionals from the construction field. Efforts and closing follow ups with the participants were made to achieve high numbers of the potential participants which reached to 107 responses. This constituted wide slice of construction players, which was an essential element to achieve more objective results.

3.1.2 Qualitative Method

Opinions of the senior experts from the construction market were sought to investigate their appraisal regarding the variations provisions of the FIDIC 99 comparably to their counterparts under FIDIC 87. The essential criterion for the selection of the interview was that the interviewees must be expert in variation provisions FIDIC 99 and FIDIC 87. Consequently, 8 senior professionals were selected to be interviewed, and all of them expressed their deep interest to participate in this research. The process of continuing following up with each one of the experts lasted for two months since its original date; however, three interviews were achieved. The other five professionals deferred repetitively their interviews several times due to the tight of their schedules.

Several questions were prepared for the interview; these questions were derived from the survey questions, library readings, and personal experience. First question requested the interviewees to give brief of his experiences and qualifications. Next questions tackled the general issues of the research topic to the specific issues. These questions were communicated to all interviewees after having their confirmation of interest to participate. The interviews were conducted and lasted for 1.5 to 2 hours. A recorder was used for the interview.

3.2 Ethical Research Norms

Ethical research norms are adopted and adhered to in this study. The supervisor's approval was sought regarding the content of the questionnaire, the questions of the interviews, and the list of the potential candidates of the construction experts for the purpose of conducting interviews with them. A brief about the dissertation was given to the participants. Also, the participants were informed that the responses would be confidential and anonymous. The last question in the survey was optional for the participant to provide his contact detail if he wish to receive the research outcomes which can be accessed only by the author and the supervisor. The interviewees were informed about the purpose of this research.

Chapter 4 Data Analysis Overview

Chapter 4 demonstrates data analysis overview which introduces the slices of the construction professionals participated in the survey and the interviews.

4.1 The interviewees

Three interviews were conducted with the most senior experts in the construction field, as follows:

1. It was essential for this study to have an interview with an expert from the FIDIC itself, an expert who has experience in drafting the FIDIC contracts. Therefore, Mr. Vincent Leloup was selected for the interview. Mr. Vincent is a senior advisor at EC Harris LLP, holding over 15 years of experience on international infrastructure. He is accredited since 2007 by FIDIC as International Trainer and delivered over 40 training sessions. He is a FIDIC Adjudicator and a member of the FIDIC Task Group 4B dedicated to the update of the FIDIC White Book.

2. Mr. Peter William Menhennet was selected for the interview as he has been involving in solving major construction claims and disputes in the UAE, for example, Abu Dhabi Airport, Abu Dhabi Central Market, and RTA Dubai Metro and Roads. These disputes involved issues related the applications of variation provisions of the FIDIC Red Book. Mr. Peter is a chartered quantity surveyor and chartered project management surveyor. He has work experience over 38 years in various commercial management roles, contracts drafting, and dispute resolution. He works in UAE in commercial management and dispute resolution

3. Also, it was critical to interview an expertise arbitrator to explore his interpretations to the variation clauses, therefore; Prof. Sam was selected for the interview. Prof. Sam has nearly 40 years. He is Arbitrator / Expert in Dubai International Arbitration Centre, also, he is Arbitrator / Mediator in London Court of International Arbitration. Moreover, Prof. Sam is Ex Middle East Representative for Australian Institute of Quantity Surveyors. His trilogy of contract administration courses have educated thousands of industry professionals on the contract administration best practice and how to deal with shortcomings found in standard forms of contract such as FIDIC.

4.2 The Percentage Of The Participant Professionals In The Survey

In order to analysis and investigate the variation provisions of the FIDIC 99, it was an important to find out the perceptions of the key stakeholders involved in the construction industry. Therefore, credible answers were sought from the most influential parties in the construction field in the UAE. Under this study, Employers/ Developers considered as employers. (Consultants/ Engineers/ Project Managements) considered as engineers. Contractors/ Subcontractors considered as contractors.

The respondents consisted of 20 employers, 50 engineers 31 contractors, and 6 Lawyers. Figure 1 illustrated the percentage of respondents in the survey. It should be noted that the highest percentage of the participants were engineers. It is envisaged that such percentage should give impartial opinions without bias from the engineers who should, presumably, act impartially. Overall, this should participate to have more objective results.

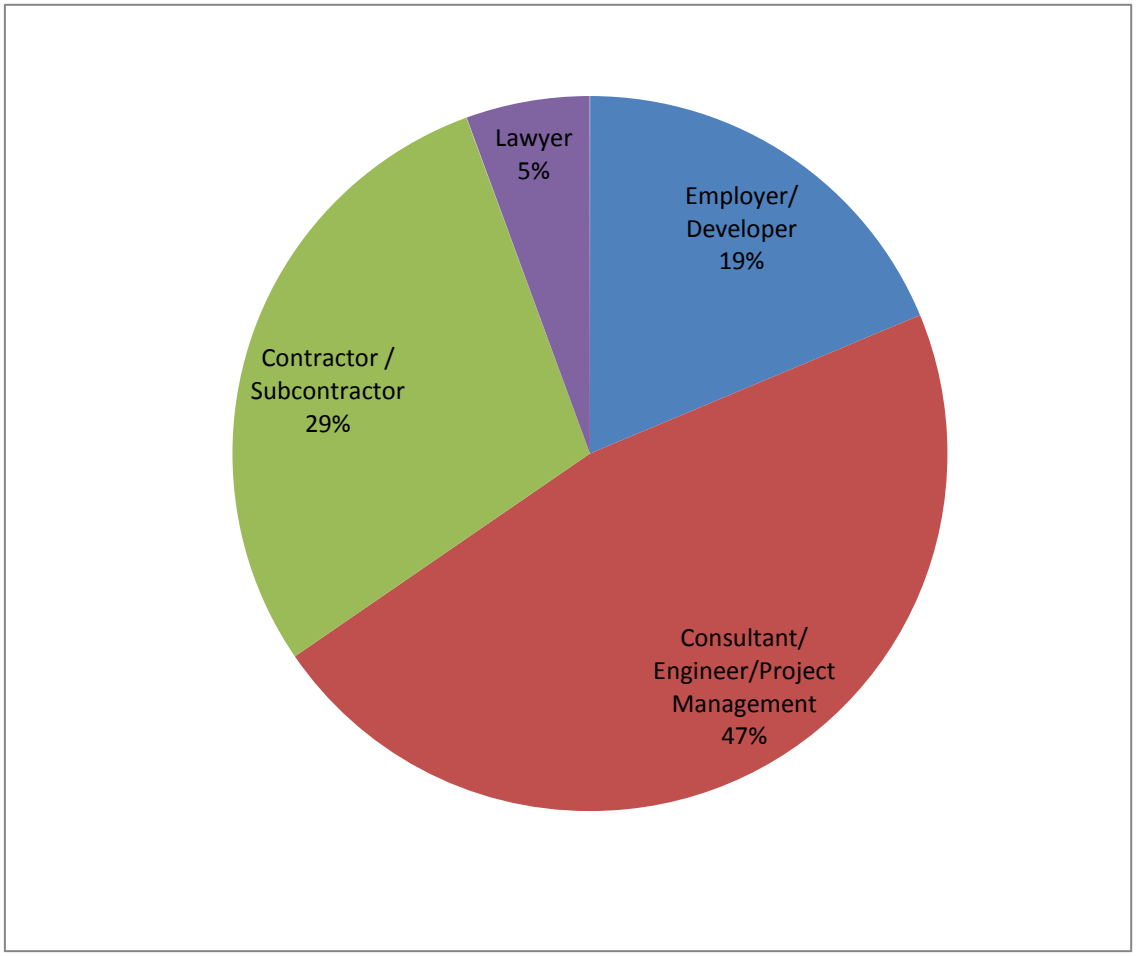

Figure 1: The percentage of the participant Professionals in the survey

4.3 Years Of Participants' Experiences

Figures 2 demonstrates the years of respondent's experiences in the construction industry. The survey addressed the participants who have more than 5 year of experience. A high percentage of the participants (58%) have more than 15 years of experience which may give more reliable information to the survey. The lowest percentage of participation (16%) goes to those who have 5-10 years of experience.

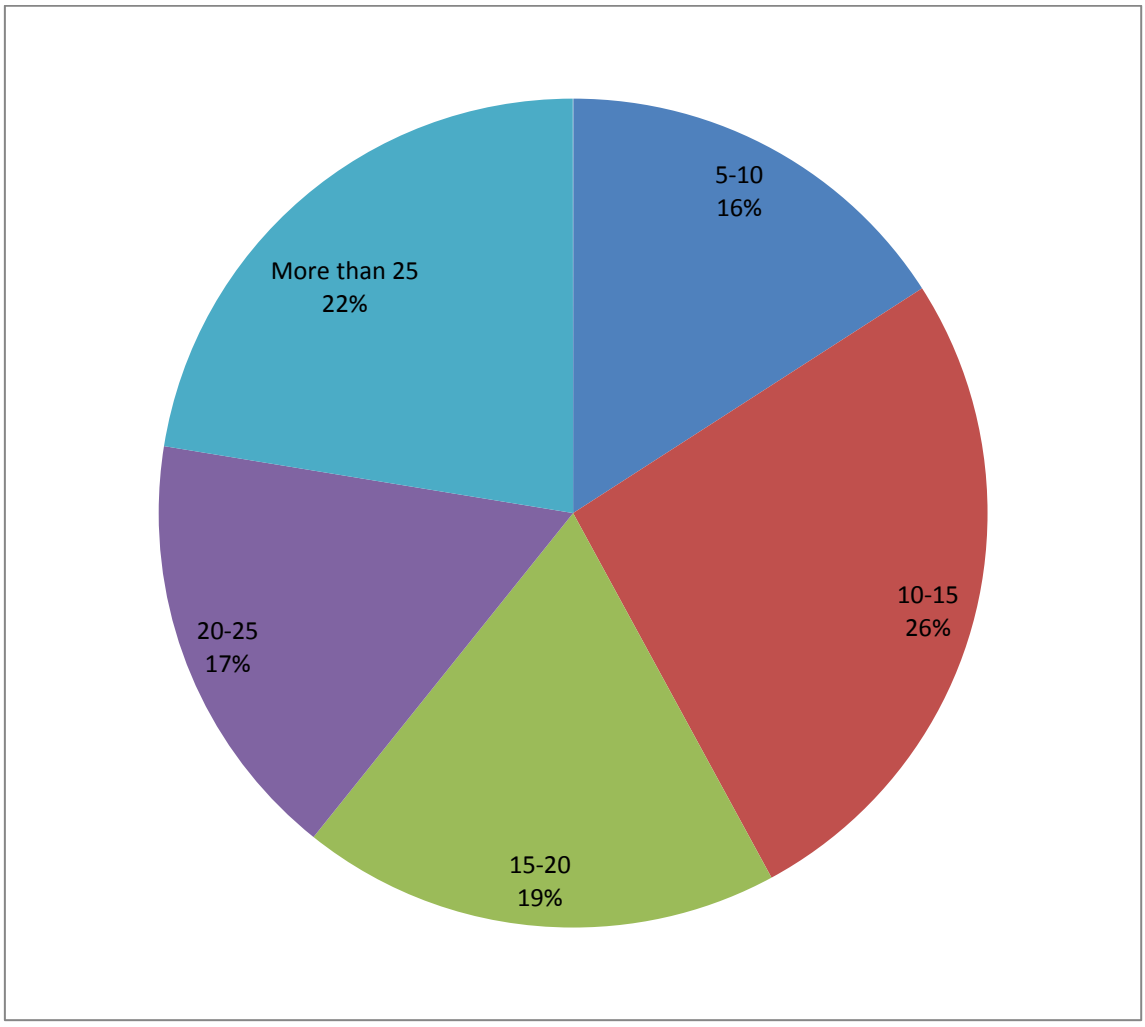

Figure 2: Years of participants' experiences

4.4 Respondents' Understanding To Their Roles And Obligations Under The FIDIC 99

Figure 3 shows that 11% of the professionals are expert in understanding of their obligations under FIDIC 99, and 38% and 32% have detailed and competent

information respectively, while only 19% have basic information. As an overall result the parties have well enough understanding to their obligations under the contract which enables them to provide quality and reliable information.

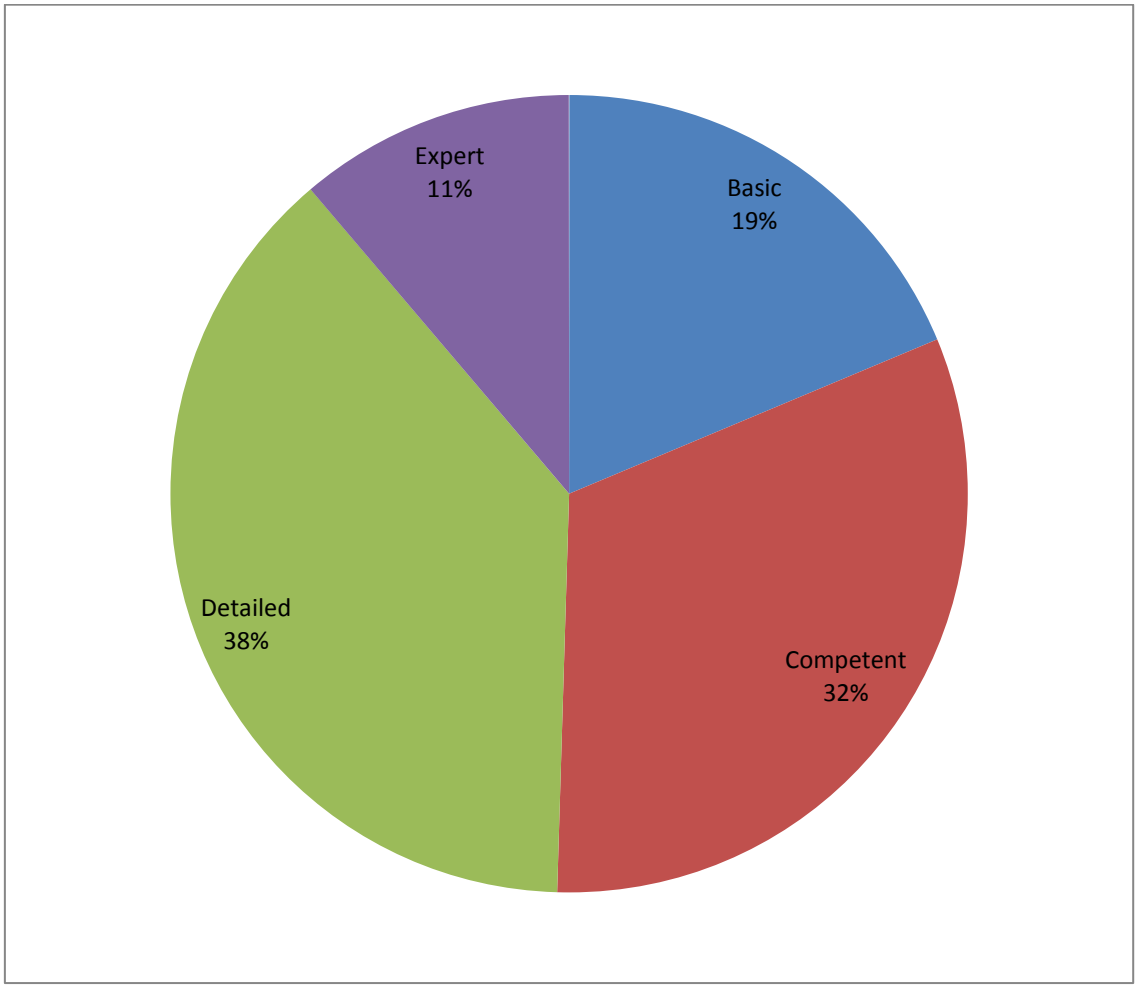

Figure 3: Understanding of the respondents to their roles and obligation under the FIDIC 99

4.5 Respondent's Perception Regarding the Improvement of FIDIC 99's Variation Provisions

The survey addressed the following question: Generally, in terms of the wordings, clarity, and accuracy, do you think that variation provisions under FIDIC Red Book 1999 have achieved improvements when compared to their equivalents under the FIDIC Red Book 1987?

Figure 4 shows that contractors (51%) think that there are improvements in variation provisions under FIDIC 99, also, the lawyers (83%) agreed with the contractors' perceptions. It seems that the contractors and the lawyers are inspired by the pros of the variation provisions provided under FIDIC 99 such as, value engineering. However, employers and consultants have a natural position. Such findings were not clear enough, therefore, experts' opinions were sought in order to elaborate and clarify further on this issue.

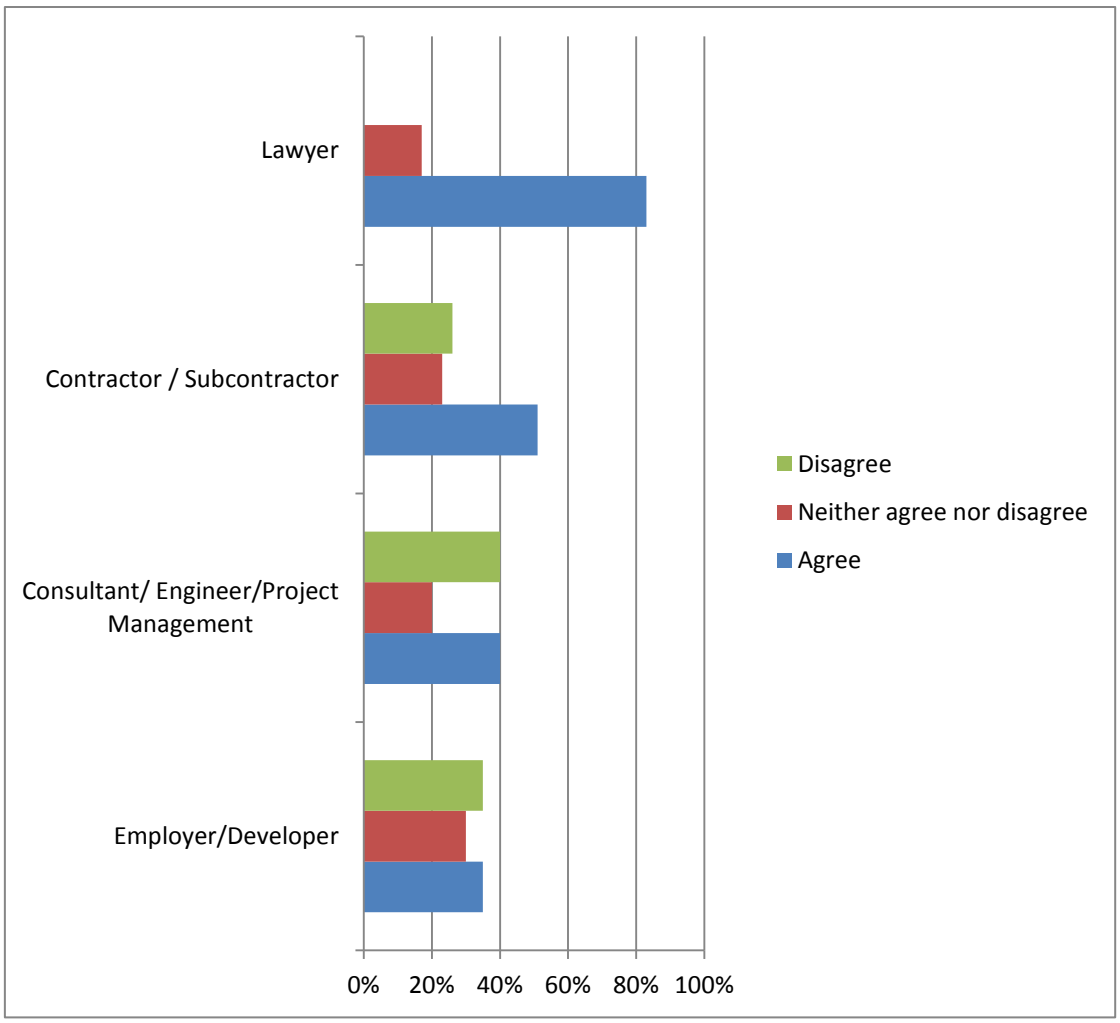

Figure 4: Respondent's perception regarding the improvement of FIDIC 99's variation provisions

Prof. Sam stated that under FIDIC 99, they have tried to rewrite everything using new simple language for people to understand. However, with regard to the variation provisions, they have missed out lots of things because they try to write them in a new language which is not required at all. Whereas, the old clauses (FIDIC 87) were very descriptive, have better clarity, and better language.

Mr. Peter answered that FIDIC 87 version was a simpler concept, but in the FIDIC 99, they made it more complex but better in my opinion, because it relies less on the subjective opinions of the engineer, and more on the direct facts. FIDIC 87 has subjective terms and have different legal definitions.

Mr. Vincent agreed that in terms of evaluation process, the FIDIC 99 has achieved improvements. He added that the evaluation process is clearer and all the evaluation processes are done under one clause 12.3.

The improvements of the variation provisions of the FIDIC 99 are answered in two different ways; Prof. Sam did not agree with the improvements, as his arguments was based on the poor drafting of these provisions. But, the other two experts are in favor of the variation provisions of the FIDIC 99, as these provisions embedded new features such as clause 12.3 "*Evaluation*". The engineers may have some concern regarding precluding their opinions from these provisions. Also, the employer may feel that some of these provisions are against them, for example, he has to pay the contractor (50%) of the cost saving, if the contractor submit valid value engineering proposal.

4.6 Whether The Application Of FIDIC 99's Variation Provisions Will Lead To Have More Disputes Compared To FIDIC 87's Counterpart Provisions

Figure 5 indicates a surprising result where the most of the key stakeholders (the contractors (60%), the engineers (50%), and employers (40%) can see that the variation provisions of the FIDIC 99 will lead to have more disputes, except the lawyers who have unclear situation to decide this issue. It could be concluded that the variation provisions of FIDIC 99 do not meet the expectations of the stakeholders in having less disputes. Also, it could be strange that the contractor who agrees with the clarity of these provisions with percentage of 51% as illustrated in figure 4, but now they can see these provisions will create more disputes. Such results necessitated to seek the experts' views.

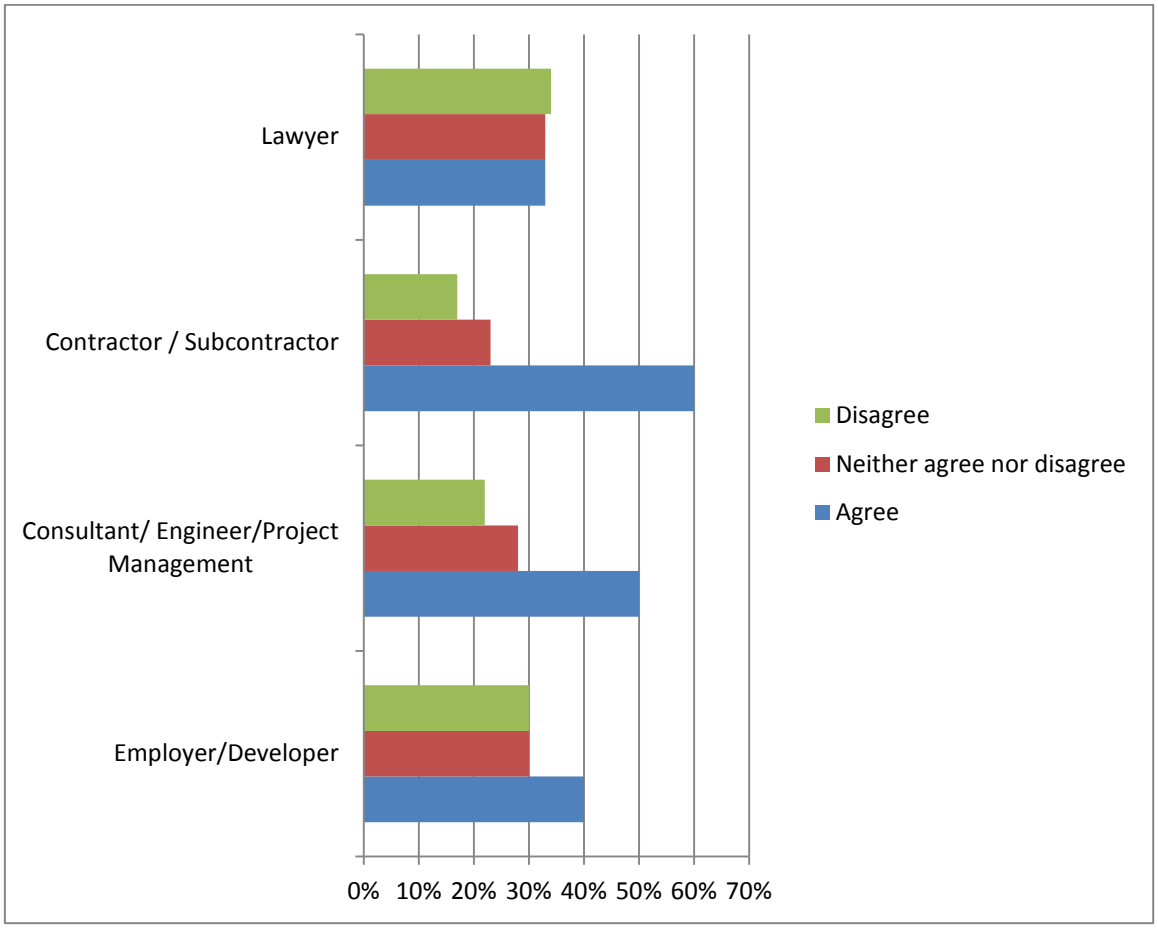

Figure 5: Whether The Applications Of FIDIC 99's Variation Provisions Will Lead To Have More Disputes Comparably To FIDIC 87's Counterpart Provisions

Prof. Sam answered that under FIDIC 99 there is room for more disputes which did not exist earlier, because these provisions are inadequate and include ambiguities, their language is not good enough, and there is room of misinterpretations.

Mr. Peter answered that FIDIC 99 has cleaner interpretation; consequently, should lead to make the disputes slightly less. But FIDIC 87 is not so well worded; it is not in favor of the contractor. If you make it difficult for the contractor to claim, he will submit very high prices.

Mr. Vincent stated that more disputes were found under FIDIC 87, the engineer was determining the rates. But in FIDIC 99 there is a wide range of consultations between the engineer and the contractor to determine the rates; FIDIC 99 provides more balance and more objective criteria.

There are two different opinions from the experts. One of them can see FIDIC 99 will lead to have more disputes in the construction industry as a result of the

misinterpretations of these provisions. However, the other two experts consider the objective criteria of the FIDIC 99 as a distinctive feature which will lead to have less disputes. The reason behind the contractors' perceptions can be that the contractors feel that there are several clauses in their favor, however, they have, also, another feeling that the employers will resist the contractors' entitlements under these provisions or the employers will amend or delete some of these provisions to prevent the contractor from benefiting for these provisions, and this will lead to have more disputes.

4.7 Preference Of The Stakeholders To Select FIDIC 99's Variation Provisions Rather Than The Ones Under The FIDIC 87

Figure 6 concludes significant perceptions that 67% of the employers and 47% of the engineers do not like to use the variation provisions of FIDIC 99, and they prefer to use variation provisions of the FIDIC 87. In contrast, 54% of the contractors and 83 % of the lawyers prefer the variation provisions of the FIDIC 99.

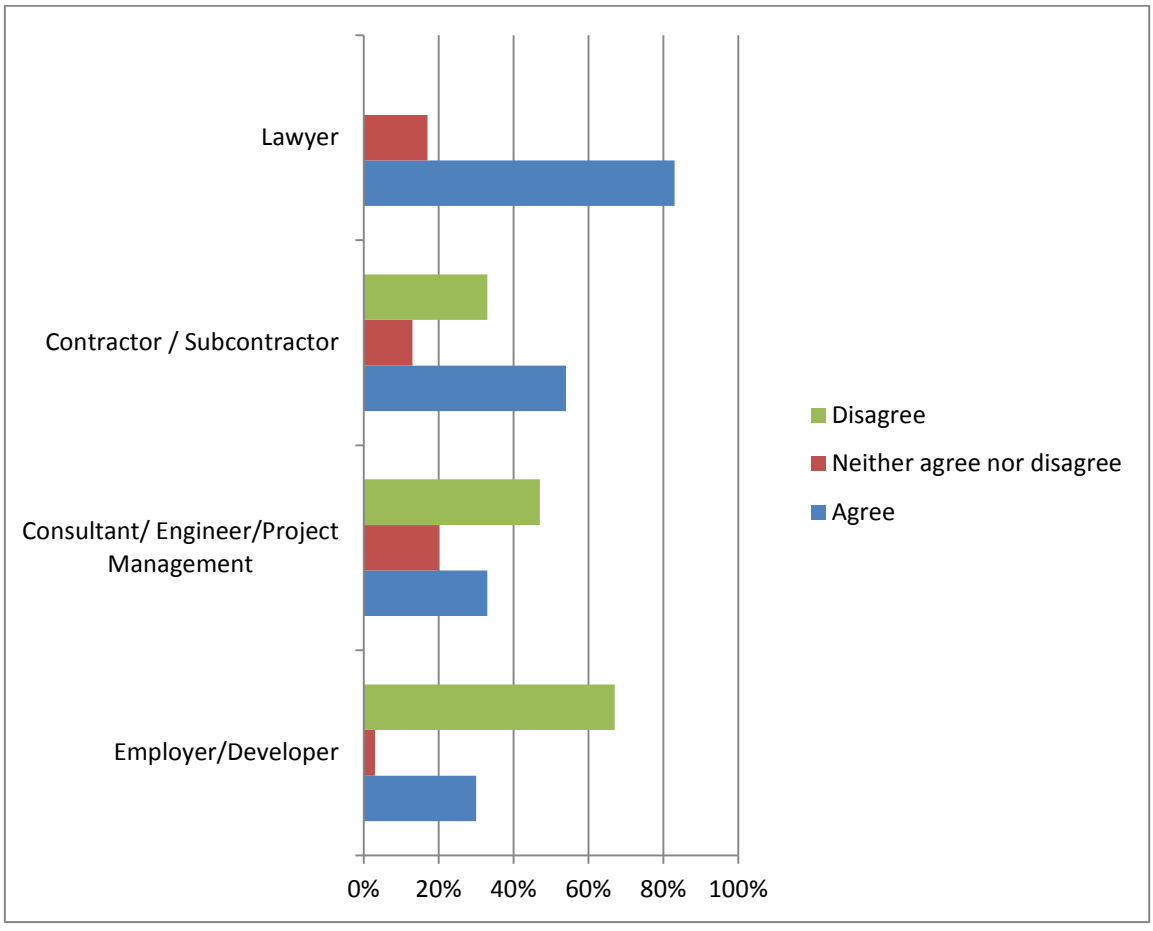

Figure 6: Preference of the stakeholders to select FIDIC 99's variation provisions rather than the ones under the FIDIC 87

The reason behind such the variance among the stakeholders could be due to the fact that FIDIC 99 has come up with new features and new wordings for the variation provisions that allow the contractor to perform activities that did not exist under FIDC 87, for example, value engineering, and the evaluation formula for re-rating. Most of the employers and the engineers have concern on some of these provisions; therefore, they do not like them, and they may consider these provisions are not in their favor. They may consider that some provisions will allow the contractors to benefit from these provisions more than he deserves particularly in the evaluation procedure issue. Or they may think that the contractor will have new entitlements which were not found under the FIDIC 87, such as sharing the employer the cost savings in the value engineering clause.

Chapter 5 Issues Arising Out Of The Application Of FIDIC Variation Clauses Under UAE Law

Chapter 5 addresses and provides comparative analysis over the issues which may arise out of the interpretations and applications of clauses 13.1 "*Right To Vary*", 13.2 "*Value Engineering"* and 13.3 "*Variation Procedure* "of the FIDIC 99.

5.1 Proposal Submission Provision

Clause13.3 "*Variation Procedure"* [48] allows the engineer to request the contractor to submit a proposal before instructing a variation. It permits an agreement with the contractor on the variation prices rather than the variation being imposed by the engineer. In practice, it is unusual for the engineer to request for a proposal for each variation, as some of variations are deemed necessary to be instructed immediately. It is predicted that the proposal will be requested by the engineer, if there is a variation of potential high value. However, there may be potential areas for disputes under this clause as follows:

Mr. Vincent stated that the engineer may try to start requesting the contractor for separate quotation for each single variation; this may lead to endless requests from the engineer which he, really, does not need them.

This clause deals with the cost of the variations only, and keeps silent regarding the direct additional payments associated with variations, for instance, the costs of disruption or delay events. If the contractor claims these additional payments separately without making them part of the cost of the variations, the engineer is likely to reject the claim of the additional payments because there is no mechanism under this clause to handle it [49]. The contractor should be aware that these costs must be taken into consideration, and not only the cost of performing the variation itself. JCT contracts clause 56.3 states expressly that the proposal shall incorporate any direct losses/ expenses by which the progress of work or any part of the project being substantially affected. Moreover, JCT clause S6.2.2 states that the contractor can object submitting a proposal, if he encounters difficulty in predicting the direct additional payments/ losses

[48] Clause 13.1, FIDIC 99
[49]Roger Knowles, *150 Contractual Problems And Their Solutions*, Blackwell Publishing, oxford 2005, http://onlinelibrary.wiley.com/doi/10.1002/9780470759455.fmatter/pdf

resultant from other events, such as disruption event. Furthermore, NEC contract clause 62 demonstrates clearly that the contractor's proposal shall consider any associated costs with the variation and any delay event to the completion date[50]. Also, JCT 98 and ICE 7th edition have such express provision.

Another gap in this clause is that the contractor has to continue working and should not postpone any work awaiting the engineer's response. Additionally, this clause does not provide a remedy in the event of abortive work, as the contractor will continue executing the work which will be demolished later upon receiving confirmation from the engineer on the variation. There should be an express mechanism for the contractor to obtain compensation/ EOT with regards to his claim for such abortive work. *Thorn*[51] *v London Corporation*, the employer paid only the price of the variation order for the varied works, and rejected the claim for abortive work. It was held that the contractor could not recover the expenses of the abortive works and he was only entitled to the cost of varied works. Moreover, abortive works is one of the most contingent risks which should be tackled expressly in the contract[52] in order to produce more efficient provisions. Absence of such express provisions will lead the contractor to lose a lot of money, then be in dispute. The contractor will try to recover such losses through other means.

Another point of controversy and argument is the following scenario: in order to make changes to the permanent work, the contractor needs to initiate his proposal for variation under clause 13.3 *"Variation Procedure"*, and he needs to wait for the engineer's approval in accordance with this clause 13.1. But the engineer may try to gamble and order the variations not to be in accordance with the proposal of the contractor but as instructed by the engineer under clause 13.1 *"Right to Vary"*. Consequently, the contractor must act in accordance with these instructions to vary the permanent works[53]. However, the contractor may insist that his proposals must be taken into consideration in order for the contractor to avoid debate regarding the evaluation of such work. Thus,

[50] *"proposed changes to the price and any delay to the completion date assessed by the contractor"*
[51] *Thorn v London Corporation* [1876] App.Cas. 120 HL
[52] "E.C Ryan, Devising Contract Terms In Construction Contracts To Produce Efficient Performance, School Of Civil Engineering, Kingston University Upon Thames, Survey, UK, in Hughes, W (Ed) 14th *Annual ARCOM Conference* 9-11 September 1998 university of reading association of researchers in construction management Vol-2,418-27"
[53] Glover, Jeremy, Simon Hughes "*Understanding the new FIDIC red book: a clause-by-clause commentary*", 1st edn, Sweet & Maxwell, 2006)

this requires a quick contractual mechanism to be invoked in order to avoid such debates before they arise. Such a mechanism is missed in this clause.

More pitfalls that may lead to disputes in this clause can be that there is no defined time limit for a response. The clause is tagged with *"as soon as possible"* as the response time by the engineer and the Contractor. The survey asked "Does this provision provide ambiguity and undefined time bar?"

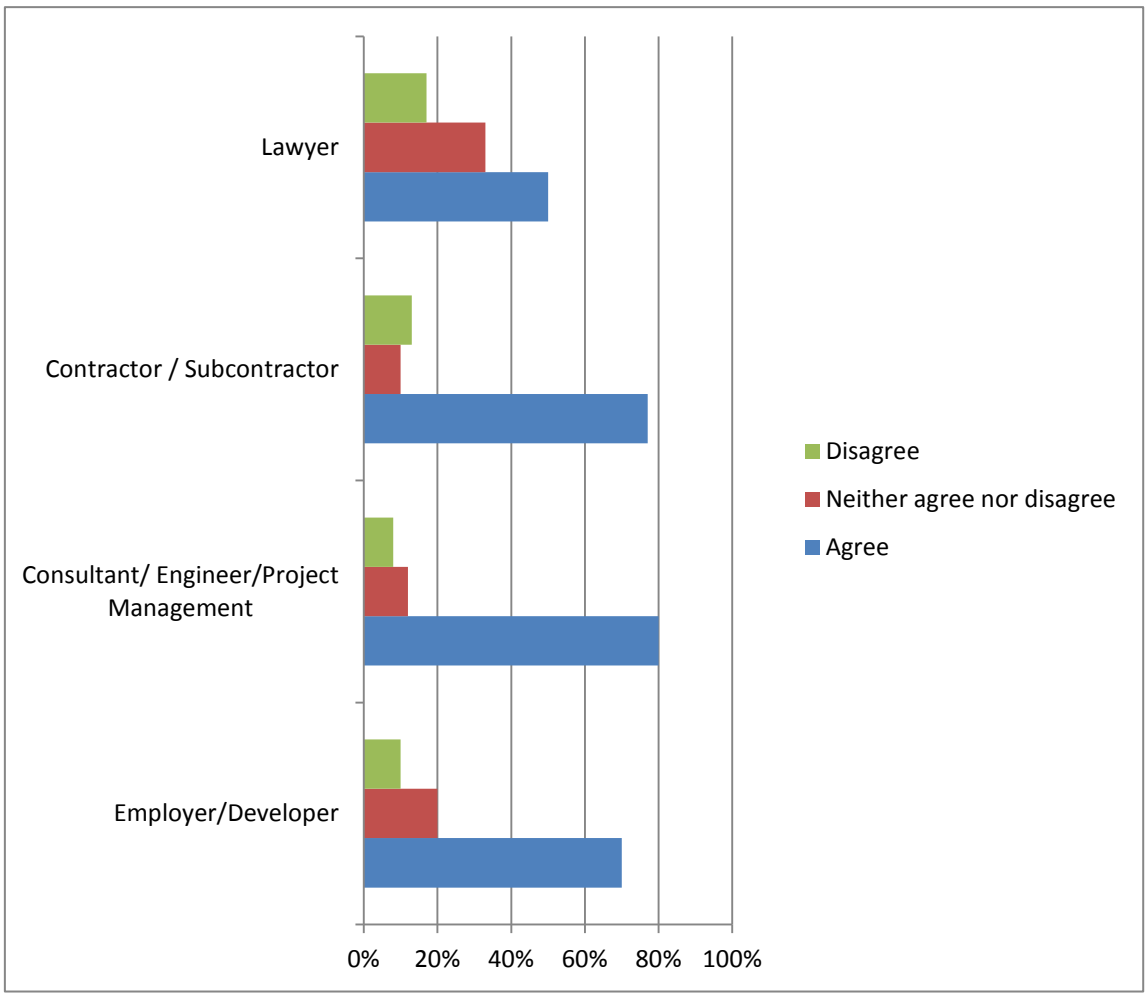

Figure 7: Stakeholders' Perception Regarding the Ambiguity of the Term "as soon as practicable"

Figure 7 demonstrates that there is an agreement among all parties that the term "*as soon as possible*" provides ambiguity. The engineers scored the highest percentage (80%), then contractors (77%), followed by the employers (70%) and the lawyers recorded (50%). All these percentages are high and may reveal a strong desire to define this term. Working under the international umbrella of FIDIC combines multinational parties with different cultures and different attitudes under one contract. Consequently,

various interpretations among the parties to this term are expected. Subsequently, this is likely to create potential debates. This term is not an objective term, because what is practicable for the engineer may not be applicable for the contractor. It can be two days, two weeks, or even one month. Also, there is no mechanism to address the failure of the engineer to respond to the contractor's quotation. NEC clause 62 closed these gaps by providing that the contractor must respond within 3 weeks[54] and the engineer[55]must respond within 2 weeks[56]. Additionally, NEC clause 62.6 provides that if there is no response from the engineer within the specified time, the quotation will be deemed as accepted.

Overall, FIDIC 99 fails to tackle the issues which may be produced as a result of the applications of this provision, though this provision provides consultation and cooperation between parties.

5.2 Value Engineering Provision

The contractor is allowed to provide proposals at any time to the engineer, for the following advantage: to complete the work quickly, to provide reduction in the cost of the overall lifecycle of the project, to improve the efficiency/ value of the project, or any matter that could benefit the employer. The expenses of the proposal will be at the cost of the contractor, the contractor will receive incentive only if his proposal is accepted. The incentive for the contractor will be shared 50% with the employer from the net cost savings. The employer can take advantage of the contractor's experience and suggestions.[57] However, the procedure specified in this clause may not encourage the contractor to submit his value engineering proposal[58].

At the tender stage the contractor may not disclose the value engineering proposal and may submit his tender with low price to win, as he knows that he will benefit from the cost saving proposal later at the execution stage. As a result, the employer may lose the chance to benefit from this proposal at the tender stage. Also, during the execution stage, the contractor will be disappointed, if his proposal is rejected, and may proceed to seek any potential claims in order to return profit/ recover compensation. Another

[54] Clause 62.2, NEC
[55] or the project manager as called under NEC,
[56] Clause 62.3 NEC
[57] Brian W, Totterdill, *FIDIC User's Guide: A Practical Guide to the 1999 Red Book*, 2006
[58] Ibid

disadvantage is that the employer may argue that the engineer should have suggested such proposal before; then conflicts and disputes between the two parties. This may discourage the engineer for innovation and reduction in taking safety consideration, consequently, increases the risk[59].

Prof. Sam commented that in practice, the employer may consider the percentage of cost saving (50%) as a high value, therefore, the employer is not likely to allow the contractor to benefit from such high percentage. Additionally, the employer will reduce this percentage to a lesser value which could be 20%, for instance.

Mr. Peter stated that the drafting of this clause may not strongly encourage the contractor to carry out the value engineering proposal but, at least, the clause is there.

5.3 Prevention Of Instructing Variations After TOC

The engineer cannot issue variations after issuing the TOC unless there is an express provision that allows for doing that[60]. The TOC concludes that the works have reached to the practical completion; consequently, the engineer's power to instruct variations will expire after TOC. In *S.J S.J. & MM Price v Milner*[61], it was held that the employer failed to issue a variation order to provide the missing specifications of many items till passing the practical completion date. Therefore, the contractor was not bound for such variations, and he was entitled to rescind the contract. FIDIC 99 clause 13.1*"Right to Vary"* complies with this rule and states that no instructions for variations, at all, after TOC. However, FIDIC 99 clause 11.2 concludes that the engineer has the power to issue variations related to maintenance and rectification of minor works and defects. Though this is an express provision to issue variation after TOC, which, also, complies with the above case, such a situation construes contradicts clause 13.1 which prevents variations after TOC, this may lead to potential dispute between parties. For example, the contractor can refuse to comply with a variation to remedy defective works relying on clause 13.1, while the engineer still wants his instructions to be enforced by relying on clause 11.2. Therefore, there is a contradistinction between these two provisions.

[59] Edward Corbett, *FIDICs New Rainbow 1st Edition- An Advance?,* International Construction Law Review
[60] Hudson's *"Building and Engineering Contracts"* (11th edition, Sweet And Maxwell, London, 2003) "it is submitted that under most sophisticated contracts variations cannot be ordered after Practical Completion in the absence of express provision, unless of course the Contractor is willing to carry them out"
[61] *S.J S.J. & MM Price Ltd versus Milner* (1968)

By comparison, FDIC 87 clause 51.1 restricted issuing variation orders during the Defects Liability Period and within 14 days after its expiry date but only for works related to rectification and maintenance. Therefore, in contrast to FIDIC 99, there are no conflicts between this clause and / or any other clauses under FIDIC 87.

The survey asked: Do the stakeholders think that the provision under FIDIC 1999 provides a better scenario, in preventing variation after TOC, when compared to its equivalent under FIDIC 1987 which allowed variation after TOC?

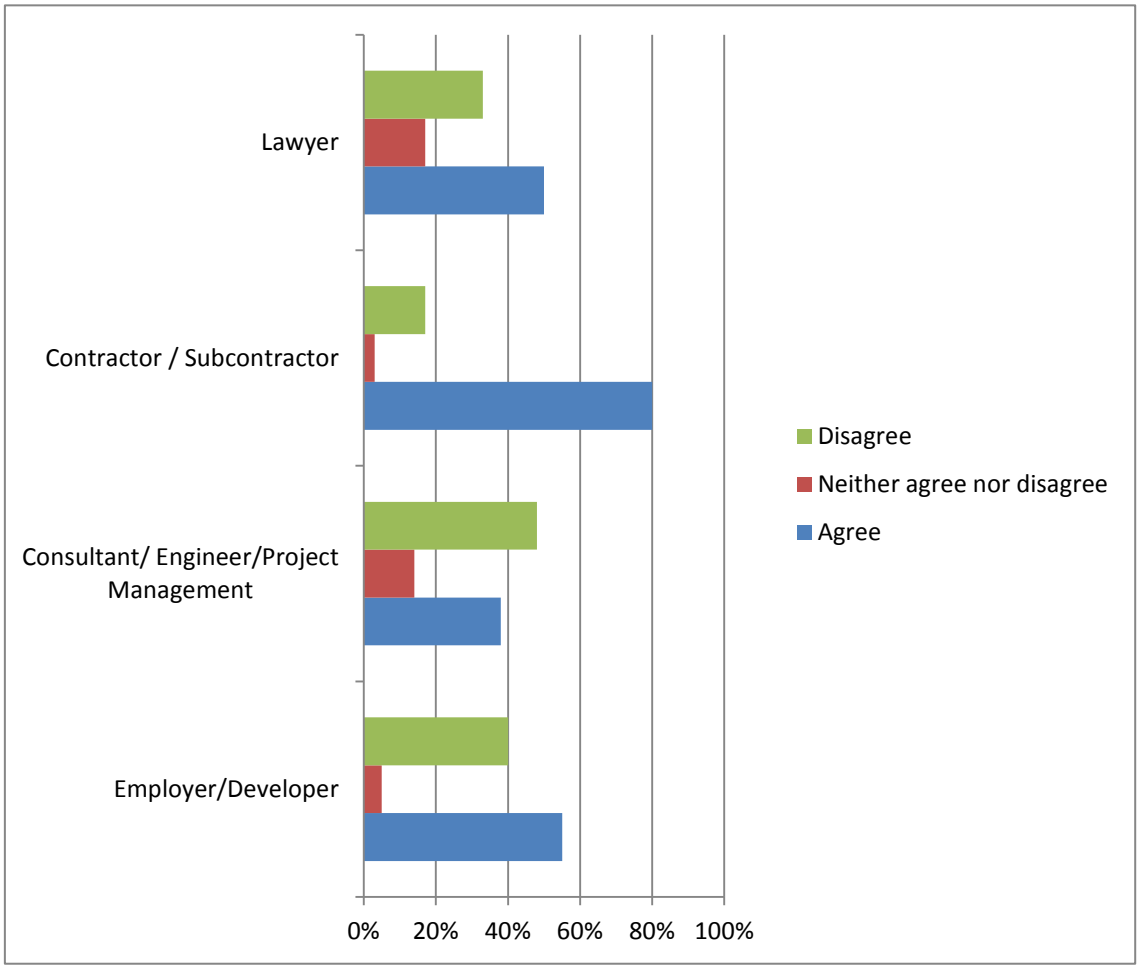

Figure 8: Stakeholders' Preference Of Not Issuing/ Receiving Variations After TOC As Provided In FIDIC 99

Figure 8 draws our intention to the fact that 80% of the contractors agree with the provision of FIDIC 99, as they do not wish to receive any instructions for variations after TOC. This could be due to fact that the contractor will prepare himself to issue the final account, and to keep issuing variations will lead to a delay in issuing a completed final account. Whereas, the engineers prefer the FIDIC 87's provision which enables

them to instruct variations during the defects liability period or within 14 days after its expiration.

It must be noted that the practical completion means that the work is completed except minor defects which the contractor needs to carry out at his own risk and cost[62], but instructing substantial changes can only be inconsistent with this principle [63]. Furthermore, it would be more convenient for the employer to have the same contractor on board after TOC to rectify defects that may arise later. As the contractor is familiar with the performed works, moreover, his goods and staff are available on site, which make him the most suitable one to perform the required work rather than appointing another contractor who is likely to provide the service at a high price.

5.4 Absence of Express Authority Of The Engineer To Instruct Variations

Often, in construction projects, the engineer instructs a variation to the works. However, in *Ashwell & Nesbit v Allen* [64], it was essential to demonstrate that engineer's instructions to the contractor to execute a variation must be within the express power of the engineer. FIDIC 87 clauses 51.1 provides significant provision granting the engineer express power "*the engineer shall have the authority"* to order variation. By expressing clearly the engineer's authority, the contractor may not be able to argue that the engineer has no power to instruct such variations. On the other hand, the engineer is not required to prove that he has (implied) authority to vary the work, each time he is instructing variations.

But FIDIC 99 omits the express authority of the engineer to vary the work. In the absence of the expression of such power in precise terms in the variation provisions, it will be assumed that this authority is implied[65] because clause 3.1(a) states that the engineer is deemed to act as the employer's agent. The engineer can order variations only as provided expressly under the contract[66], and he cannot assume that he has automatic authority to instruct variations as held in *Cooper v Langdon*[67]. Consequently,

[62] Hudson's *"Building and Engineering Contracts"* (11th edition, Sweet And Maxwell, London, 2003)
[63] Roger Knowles, *150 Contractual Problems And Their Solutions,* Blackwell Publishing, oxford 2005, http://onlinelibrary.wiley.com/doi/10.1002/9780470759455.fmatter/pdf
[64] *Ashwell & Nesbit Ltd v Allen & Co* (1912) stated in Hudson's *building and construction contracts* 462(C.A.)
[65] *Sir Lindsay Parkinson & Co Ltd v Commissioners Of Works* [1950] 1 All ER 208
[66] Reg Thomas, "*Construction Contracts Claim"*, (2nd edn, Palgrave, New York 2001)
[67] *Cooper v Langdon* (1841) 9 M & W 60

the engineer's authority to order variations is restricted only to the works under the contract, even though he acts as the employer's agent[68]. Therefore, the engineer does not have authority to order variations which are not provided by the contract. Adriaanse[69] states, extra work requires that the engineer has the authority to instruct such variation. Otherwise, this variation is considered to be unauthorized and the contractor can refuse to execute it. If the contractor execute such unauthorized variations, the engineer will be held liable personally to the contractor [70].

Furthermore, the engineer "*is just an ordinary service employee of the employer and no longer free in his decision*" [71]. Under this principle, the engineer may presume mistakenly that he has inherent authority derived from his acting as the employer's agent in all issues. Equally, the contractor may have such incorrect assumption when he recognizes that his payment is rejected by the employer[72]. In *New Zealand Structures and Investments v McKenzie*[73], the engineer acted in the capacity of an agent to the employer; however, the employer refused the contractor's claim for payment, and argued that the engineer did not have power to issue changes of more than 5000 dollars. It was held that the contractor was entitled for payments of such variation, as the engineer had wide authority to instruct variation. As a result of such implied authority for the engineer, that case, at least, reached court. Therefore, the prudent contractor may demand the engineers to obtain the employer's approval before instructing variation in order to avoid employer's resistance to pay the variation. This may lead to a delay in implementing a variation which needs to be executed immediately, consequently, it may affect the whole progress of works.

Also, the role of the engineer under FIDIC 99 may be unclear enough and debatable[74], as clause 3.5 requires the engineer to act fairly in determination in connection with claims clauses and not in connection with variations and evaluation of variation[75].

[68] Reg Thomas, "*Construction Contracts Claim*", (2nd edn, Palgrave, New York 2001)
[69] Adriaance J, *Construction Contracts Law*, (3rd edn, Palgrave Macmillan, London, 2010)
[70] Reg Thomas, "*Construction Contracts Claim*", (2nd edn, Palgrave, New York 2001)
[71] Hok, Stieglmeier *"The FIDIC Red Book "Harmonized Version" As A Variation Of The FIDIC Red Book 1999 And The Standard Bidding Formulas Of The World Bank Bidding Documents 2005"* (2006) The International Construction Law Review
[72] Reg Thomas, "*Construction Contracts Claim*", (2nd edn, Palgrave, New York 2001)
[73] *New Zealand Structures and Investments Ltd v McKenzie* [1979] 1 NZLR 515 affirmed by the New Zealand Court of Appeal in [1983] NZLR 298
[74] Edward Corbett, *FIDICs New Rainbow 1st Edition- An Advance?*, International Construction Law Review
[75] Ibid

Therefore, there is no express provision to determine how the engineer shall act in instructing or evaluating the variation. Consequently, the engineer may not be faire in instructing specific variations to the contractor and the engineers can argue that "*we don't have to be faire"*[76]. This could lead to debate and disagreement which may reach to litigation. In *Perini Corp v Commonwealth (Redfern Mail Exchange Case)* [77], it was held that the engineer's power to instruct variations must still require the engineer to act fairly, though the contract did not contain express provision for such functions.

Also, the contractor may debate with engineer that the instructed variation is not within the jurisdiction of the engineer and he may refuse to carry out any instructed variation, or may claim that the engineer's evaluation for the variation is unreasonable and unfair. In *WMC Resources v Leighton Contractors*[78] the judge demonstrated that the engineer's power to value variations required him to act fairly. Furthermore, in *Beaufort Developments (NI) v Gilbert-Ash (NI)* [79], the House of Lords held that the contractor could be subjected to the risk of injustice because of the potential bias from the engineer as an employee of the employer.

Clause 3.5 *"Determination"* of FIDIC 99 provides that if the contractor or the employer is unhappy with the engineer's determination, claims under clause[80] 20 can be invoked to solve the dispute[81]. But if the engineer acts for the employer how can he act fairly in his determination [82]. Furthermore if the engineer takes determination against the employer, the employer will not be happy with his employee "the engineer", consequently, the employer will be in potential conflict with the engineer who can be terminated as a result of such determination.

Overall, in terms of the variation provisions, the engineer may have difficulties and will be in disputes which were not found under FIDIC 87, as result of not having provision

[76] Ibid
[77] *Perini Corp v Commonwealth (Redfern Mail Exchange Case) [1969]* 2 NSWR 530, 536
[78] *WMC Resources Ltd v Leighton Contractors Pty Ltd* (1999) 15 BCL 49
[79] *Beaufort Developments (NI) Limited v Gilbert-Ash (NI) Limited and Others* [1998] 2 All ER (HL) 778
[80] Clause 20, FIDIC 99
[81] Brian W, Totterdill, *FIDIC User's Guide: A Practical Guide to the 1999 Red Book*, 2006
[82] Edward Corbett, *FIDICs New Rainbow 1st Edition- An Advance?*, International Construction Law Review

to express the power of the engineer in instructing variations, and to act impartially and fairly[83] in determination of the value of the variation.

5.5 Objection Of Variations By The Contactor Due To Non-Availability Of Goods

FIDIC 99 clause 13.1 states that if the contractor cannot readily obtain the Goods (equipment, plant, material or temporary works) required for the instructed variations, the contractor can object to carry out such variation provided that he has served a notice of objection with supporting particulars to the engineer. The survey asked: Do the stakeholders think that the above provision is valid reason for the Contractor so that he will not be bound by the instructed Variation?

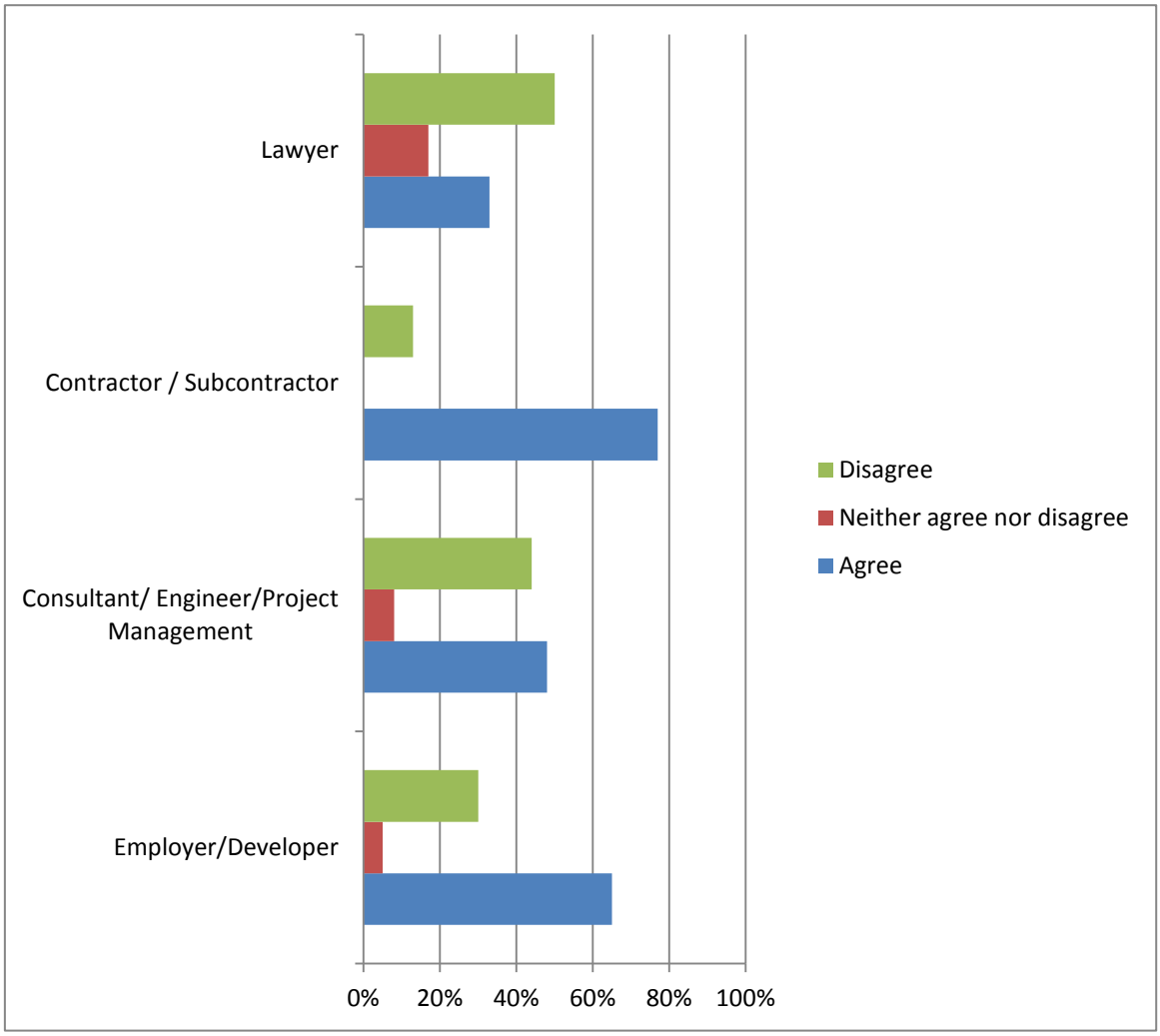

Figure 9: Whether The Contractor Has Valid Reason For Objection The Variation, If He Cannot Readily Obtain The Goods

[83] When compared to Clause 2.6 *"Engineer to Act Impartially"* , FIDIC 87

Figure 9 shows that the general trend is that most of stakeholders welcomed the FIDIC 99 provision. The highest percentage (77%) went to the contractors, then 65% of employers followed by (48%) for the engineers. However, 50% of the lawyers and 43% of engineers disagree with this ground for objection.

Though this provision is welcomed by most of the contractors, the risks which are associated with the contractor's personnel and goods shall be borne by the contractor, as these risks can be controlled and managed by the contractor[84]. For example, the contractor can manage to procure the goods/ personnel from another country. Furthermore, unpredicted difficulty in completion of the works may not entitle the contractor to object to execute the work[85]. Unpredicted difficulty can be, for instance, non-availability of goods or non-availability of contractors' staff. In *Davis Contractor v Fareham Urban District Council*[86], the House of Lords denied the contractor's claim as the scarcity of labor was not the fault of the contracting parties, and this was insufficient reason for the contractor to refuse to work. FIDIC 99 concludes that if the contractor cannot obtain his management staff and labor, he cannot object to the variation based on this ground[87]. However, the same principle can be applied to the non-availably of goods which can be considered as an unpredictable difficulty, consequently, the contractor should manage it. The contractor is in a best position to control it, and in a good position to deal with the suppliers of the goods.

Moreover, having critical anatomy to the drafting of the clause 13.1, it can be found that the engineer has 3 options: whether to cancel, confirm, or vary the variation upon receiving the contractor's notice of objection. However, it would be more sensible in such circumstances that the engineer should cancel or vary his instructions and not to confirm it. If the engineer still confirms such variation, then he ignores the contractor's request[88]. Consequently, the contractor may proceed to claim under clause 20.1, then dispute which shall be referred to DAB as the only remedy left to the contractor[89]. In

[84] Smith N.J, Managing Risk in Construction Contracts, (1st edn, Blackwell Publishing Company, Oxford, 1999)
[85] Reg Thomas, "*Construction Contracts Claim"*, (2nd edn, Palgrave, New York 2001)
[86] *Davis Contractor Ltd v Fareham Urban District Council* [1956] 2 All ER 148 HL
[87] Brian W, Totterdill, *FIDIC User's Guide: A Practical Guide to the 1999 Red Book,* 2006
[88] Glover, Jeremy, Simon Hughes "*Understanding the new FIDIC red book: a clause-by-clause commentary*", 1st edn, Sweet & Maxwell, 2006)
[89] Hakan Broman and Frank Kehlenbach, "*EIC contractor's guide to the FIDIC conditions of contract for design, Build and operate projects (FIDIC Gold Book*)", (2010) The International Construction Law Review

contrast, FIDIC 87 allocated such risk to the contractor; therefore, there should be no potential claims/ disputes on this issue, as it would be clear that this risk should be the contractor's responsibility.

It is worth observing that the contractor has another valid reason that enables him to object to the execution of variations; if the employer fails to provide reasonable evidence of financial arrangements for the instructed variation[90] pursuant to clause 2.4[91] of FIDIC 99.

5.6 Can The Contractor Vary The Works Without Instruction?

Some changes to the work may result from the clerk of works. If the contractor carries out these changes without confirmation from the engineer, he will not be able to recover the expenses of such changes provided that there is an express provision in the contract preventing the contractor from executing such changes[92]. Thus, the engineer can respond only to a few items which may be changed by the contractor without confirmation from the engineer, therefore, this may lead to a reduction in the possibility of receiving claims from the contactor. FIDIC 87 clause 51.2 provides an express and clear provision sanctioning the contractor from doing "*any variation*" [93], whether it is addition, omission, or modifications. Other forms of contracts, for example, the comparable clause in JCT is drafted by using the word "*change*" and not "*alterations/ modification*" as this clause provides significantly that the engineer to sanction a "*change*" made by the contractor without instruction from the engineer. Therefore, the engineer's power to prevent variations made by the contractor is very crucial to be expressly stated in the contract.

However, FIDIC 99 clause 13.1 prevents the contractor from performing "*any alteration and or modification*" to the works. The claim-oriented contractor may argue that there is nothing preventing him from performing "*additions/ omissions/ changing character/ quality*" to works without instructions, as the provision refers only to any

[90] Glover, Jeremy, Simon Hughes "*Understanding the new FIDIC red book: a clause-by-clause commentary*", 1st edn, Sweet & Maxwell, 2006)
[90] Hakan Broman and Frank Kehlenbach, "*EIC contractor's guide to the FIDIC conditions of contract for design, Build and operate projects (FIDIC Gold Book*)", (2010) The International Construction Law Review
[91] Clause 2.4, FIDIC 99
[92] Brian W, Totterdill, *FIDIC User's Guide: A Practical Guide to the 1999 Red Book*, 2006
[93] Clause 51.2 "The contractor shall not make any such variation without an instruction of the engineer "

"*alteration or modification*" and not to any other type of variations. Consequently, the contractor can perform any variation to works and claim its associated expenses/ EOT. It is presumably envisaged that the expression *"alterations/ modification"* is a point to interpretation and debate. It has broad interpretations and it may cause doubts and confusion[94], as there is no specific definition for *"alterations/ modifications*". Each party will try give a meaning that serves his purpose/ interest. Justin Sweet [95] distinguished significantly between "*changes and modifications"*. Modifications are by a mutual agreement between the contractor and the employer to vary part of the work; parties approach such mutual consent to avoid the formal regulations provided in the variation provisions. Whereas, Changes permit the employer to unilaterally instruct the variations without agreement with the contractor. It must be noted that these ambiguities and inconsistencies of the variation provision are to be used against the party that insisted upon the application of these provision formula[96]. This may have an effect on the foreseeability of the contractual risk, consequently, more vigorous debates are expected[97].

Another problem under this clause is that the employer could argue that there has been no variation on the work. The employer would be considered in violation of the good faith principle, as he behaved unreasonably, and violated the procedure stated in this provision[98].

This inconsistency in using analogous terminology will lead to vigorous disputes; FIDIC 99 could simply call it *"variations"* instead of *"alterations/ modifications"*.

5.7 Changes In Quantities Of The BOQ

The Survey addressed question of what are the most 3 common problematic issues arising from instructing Variations.

[94] Philip C F Chan, *"Change And Related Costs Management – Some Observations From Singapore"* (2005) The International Construction Law Review
[95] Justin Sweet," *legal Aspects of architecture, engineering and the construction process"* (6th edn, Brooks/ Cole Publishing Company, 1999)
[96] "E.C Ryan, Devising Contract Terms In Construction Contracts To Produce Efficient Performance, School Of Civil Engineering, Kingston University Upon Thames, Survey, UK, in Hughes, W (Ed) 14th *Annual ARCOM Conference* 9-11 September 1998 university of reading association of researchers in construction management Vol-2,418-27"
[97] Ibid
[98] Glover, Jeremy, Simon Hughes "*Understanding the new FIDIC red book: a clause-by-clause commentary*", 1st edn, Sweet & Maxwell, 2006)

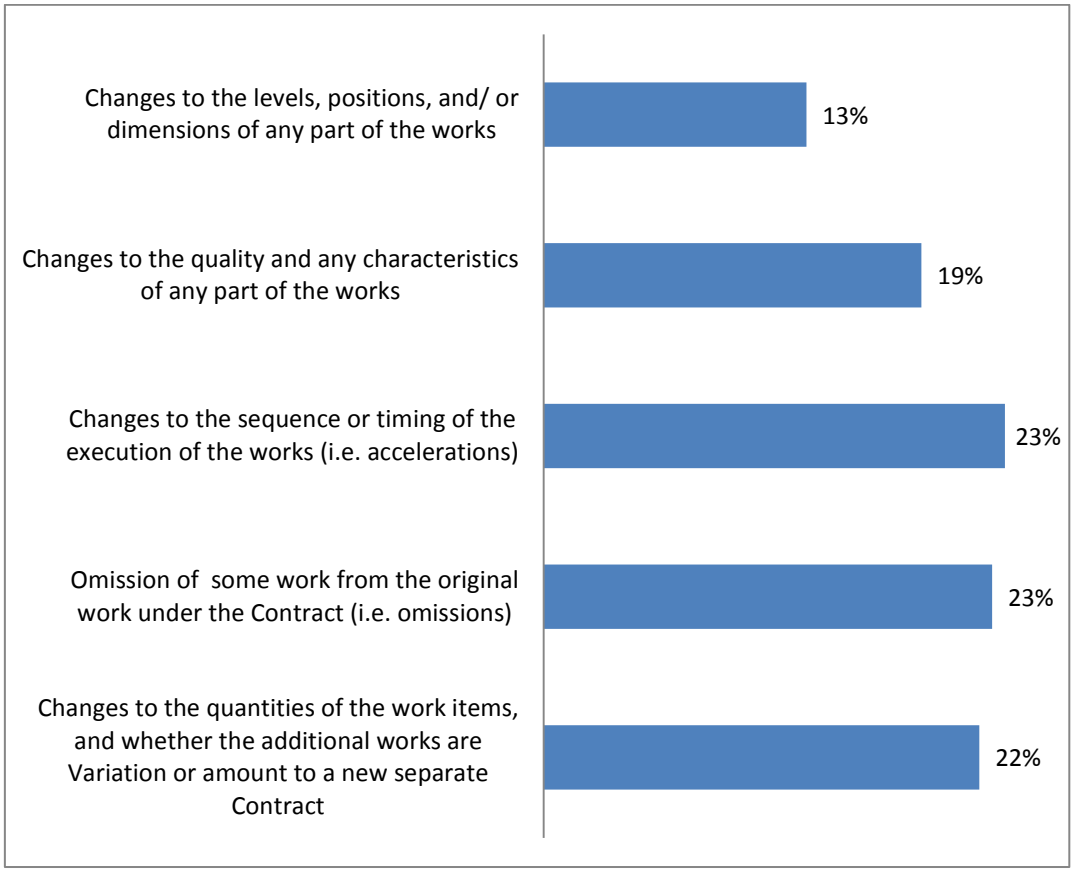

Figure 10: The Most Contractual Problems Arise Out Of The Applications Of Variation Provisions

Figure 10 reveals that the most problematic issues in the UAE which occurred as a result of the applications of variation provisions are: omissions and accelerations with percentage of 23%. The second percentage of 22% went to the issue of changes in quantities and whether the instructed works entail variations or are outside of the work. This concludes that changes in quantity are among the most serious issues which require drafting and prescribing in a precise manner. Both FIDICs 99 and 87 addressed this issue as follows:

FIDIC 99 clause 13.1(a) *"changes to the quantities of any item of work included in the contract (however, such changes do not necessarily constitute a Variation)"*.

This provision is comparable to FIDIC 87 clause 51.1(a) "*increase or decrease the quantity of any work included in the contract"*

The objective of this clause is to notify the contractor that the contractor should not assume automatically that any change to a quantity of an item amounts to a variation. If the quantity of an item is changed, such change may or may not be construed as a

variation[99]. Change in quantities can be resulted from inaccurate BOQ (which means that there is a difference between what is theoretically stated in the BOQ and the actual physical quantity). Such changes in quantity should not constitute a variation as indicated by FIDIC 99 clause14.1(c) [100]. This clause states that the quantities set out in the BOQ are estimated ones and not actual/ correct ones[101]. Thus, any change resulting from this situation does not need instruction from the engineer[102], thus, such changes in quantity should not amount to variations as demonstrated in case[103] *Arcos V Electricity Commission (NSW),* the New South Wales court of appeal rejected the contractor's claim as the shortfall in quantities between what was states in schedule of rate and the actual quantities at site did not amount to a variation, as the contract stated expressly that the schedule of rates served the purpose of indicative quantities.

However, in Ancro's case the court clarified that if there were changes in quantities to the actual work to be carried out, such change would entail variation. Therefore, if the engineer wishes to apply some changes on actual works which are stated in the tender drawings and documents, or if the changes are resulted from contractor's default, such changes in quantities require instructions from the engineer as these changes trigger variations. FIDIC 87 clause 51.2 "*Instruction For Variation*" [104] which declares expressly that when there is change in quantity as a result of difference between what is set out in the BOQ and the actual quantities, only is this case there is no need for instruction[105]. This concludes that other types of changes entail variations.

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[99] Brian W, Totterdill, *FIDIC User's Guide: A Practical Guide to the 1999 Red Book*, 2006
[100] Clause 14.1(c), FIDIC 99
[101] Analogous provision is found under FIDIC 87 clause 56.1
[102] Guide to the use of FIDIC condition of contract for works of civil engineering construction, fourth edition. Issued by FIDIC "federation international des ingenieurs-conseils'
[103] *Arcos Industries V Electricity Commission Of New South Wales* (1973) 2 NSWLR 186 12 BLR 65 where the contract was measureable for the construction of power plant. The contract stated that the payment will be based on the actual quantities of work and not on the quantities mentioned in the schedule of rates which were expressly stated as approximate quantities. Also, the contract provided that the total amount of addition and omission of the work should not exceed more than 10%. But later, it was found that there was wrong in quantities of the work by which the actual quantities were less than the ones mentioned in schedule of rates. The contractor Arcos argued that such short fall amount to omission variation. The New South Wales court of appeal held that the variation provision was provided for the variation in the actual work to be carried out and not the variation in the quantities of the schedule of rates, and the total contract price could be concluded by multiplying the actual quantity not the estimated one with the contracted unit rate. Therefore such shortfall did not amount to variation.
[104] FIDIC 87 clause 51.2 "*no instruction shall be required for increase or decrease in the quantity of any work where such increase or decrease is not the result of an instruction given under this Clause, but is the result of the quantities exceeding or being less than those stated in the Bill of Quantities* "
[105] *Guide to the use of FIDIC condition of contract for works of civil engineering construction, fourth edition*. Issued by FIDIC "

The survey asked that: Do the stakeholders think that the clause 13.1(a) of the FIDIC 99 needs more clarifications/ amendments in order to solve this dispute?

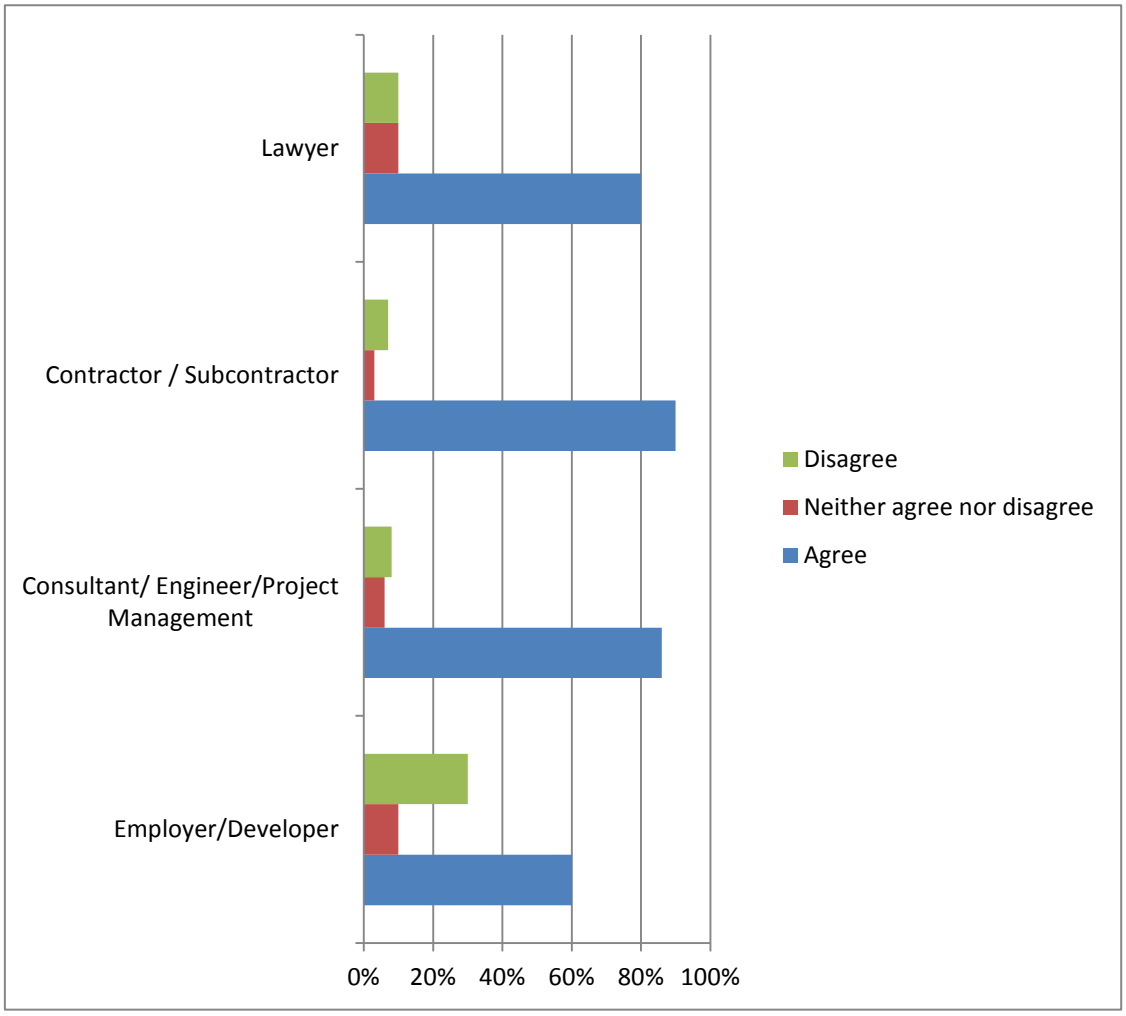

Figure 11: Necessity To Amend/ Clarify The FIDIC 99 Clause 13.1(a)" The Changes In Quantities"

Figure 11 demonstrates that all parties are really in favor of having asserted improvements/ amendments to FIDIC 99 clause 13.1 (a). This provision uses the word *"such changes"* which refers to all kind of changes in quantity whether incorrect BOQ, changes in actual works, or contractor's default. This clause does not distinguish between the causes of changes in quantity as this is very crucial in determining which cause of change in quantity needs instruction for variation and which one does not need.

The concern arises when the quantities are changed and exceeded the threshold values stated under clause 12.3 *"Evaluation*", BOQ items will be re-rated even without instructions. The engineer's instruction is still needed to determine the rates of the

quantities which may construe automatic variations[106], otherwise the engineer is more likely to reject the contractor's claim for re-rating/ additional payments of changes executed without instructions. Furthermore, such a process is likely to be in contradiction with UAE law, Article 886(1) of CTC[107], which concludes that the contractor must notify the employer with the expected additional price which will be incurred by the employer. If the contractor fails to serve such a notification, then the contractor would lose his additional entitlements. After such a notification, the employer must take the decision, whether to continue with the work or withdraw from the contract.

Therefore, drafting this provision with the word *"such"* may lead to highly vigorous debate and disputes. It could be suggested that the additional phrase of FIDIC 99 could be amended by using "*some changes*" in quantities instead of *"such changes"*.

5.8 Additional Works Provision

FIDIC 99 clause 13.1 (e) states that *"Any additional work, Plant, Materials or services necessary for the Permanent Works, including any associated Test on Completion, boreholes and other testing and exploratory work"*.

Whereas FIDIC 87 clause 51.1 (e) states that *"execute additional work of any kind necessary for the completion of the Works"*

FIDIC 99 provision states that any additional work necessary for the permanent work, but excludes the temporary work[108]. Whereas FIDIC 87 states any additional work necessary for the completion of works, therefore, FIDIC 87's provision was wider to include both temporary and temporary work.

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[106] FIDIC, *Guide To The Use Of FIDIC Condition Of Contract For Works Of Civil Engineering Construction*, 4th edn.

[107] UAE Civil Code, Law # 5 of 1985, Article 886 "1. If a contract is made under an itemised list on the basis of unit prices and it appears during the course of the work that it is necessary for the execution of the plan agreed substantially to exceed the quantities on the itemised list, the contractor must immediately notify the employer thereof, setting out the increased price expected, and if he does not do so he shall lose his right to recover the excess cost over and above the value of the itemized list.
2. If the excess required to be performed in carrying out the plan is substantial, the employer may withdraw from the contract and suspend the execution, but he must do so without delay and must pay the contractor the value of the work he has carried out, assessed in accordance with the conditions of the contract."

[108] FIDIC 99 defined Temporary Work as all temporary works (excluding contractor's Equipment) required on site for the completion of the Permanent Works and defects.

Mr. Peter stated that FIDIC 99's provision shows a slight change and is less restrictive, consequently, in favor of the contractor.

The survey queried "Do the stakeholders think that FIDIC 99 clause 13.1 (f) requires clarifications/ amendments.

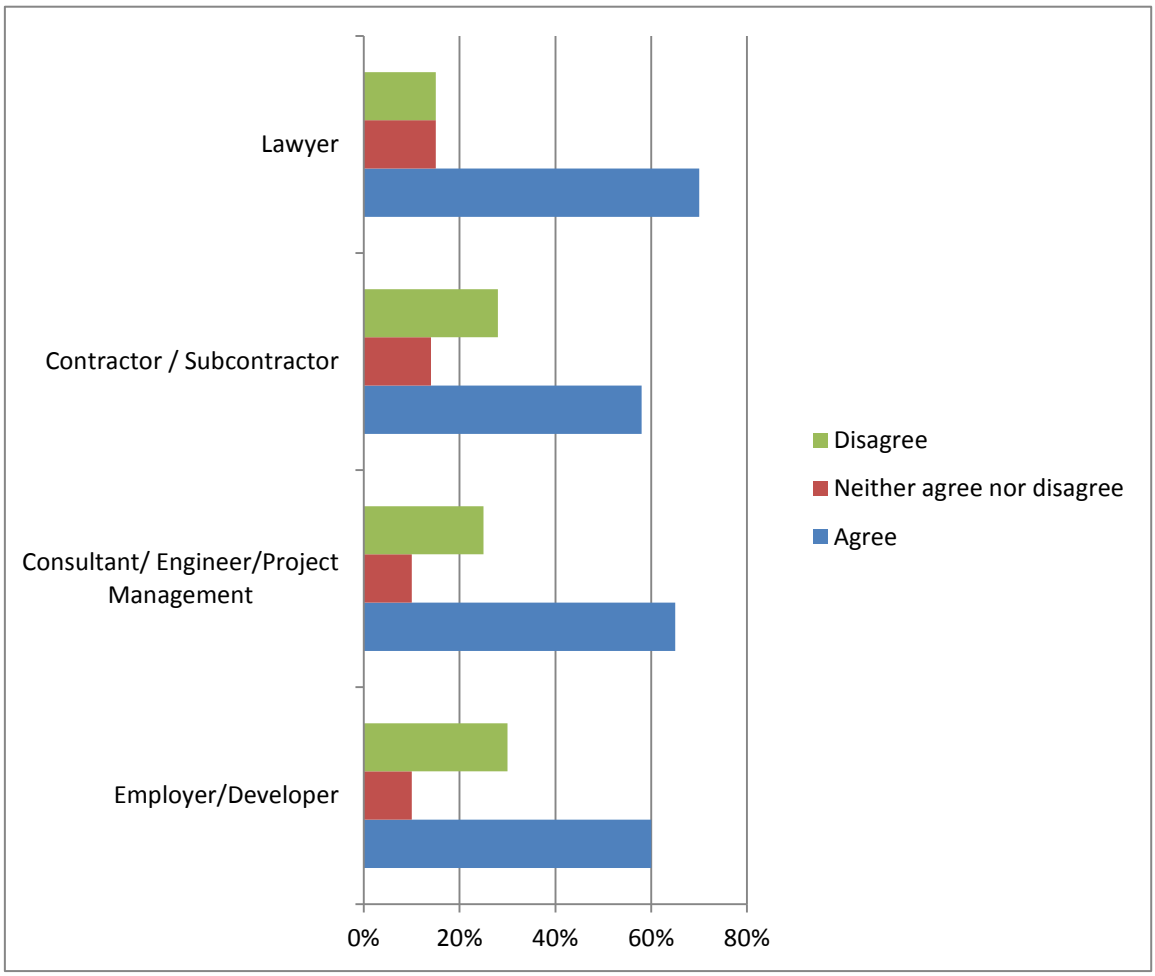

Figure 12: Necessity To Amend/ Clarify The FIDIC 99 Clause 13.1(e) Regarding Additional Necessary Works

Figure 12 illustrates that the trend of all the respondents is that the improvements/ clarifications are necessary for this provision. In practice, the application of this provision causes potential conflict between the contracting parties. The contractor may argue that the engineer's instruction construes a variation which entitles him for additional cost/ EOT. On the other hand, the engineer may consider such instructions are still within the scope of work and reject the contractor's claim. Such a scenario causes frequent conflict in the construction field and is considered one of the most problematic issues in the UAE as it is demonstrated in figure 10. It can be concluded

that stakeholders expect FIDIC 99 to draft more detailed provision instead of such concise drafting. Also, the FIDIC guide[109] does not provide any useful information in this regards.

At the first instance, the employer and the contractor must carefully understand in details what the scope of work they are contracted for is. Even though the work under the contract is well defined, it is always possible that some works are not considered as extra work but fall with the obligations of the contractor[110]. Some works are expressly worded in the contract documents, therefore, it is unlikely to cause dispute. In contrast, the implied work is more likely to lead to dispute as the contractor may automatically assume that an instruction from the engineer to execute work means that the instructed work is additional work which entitles the contractor for additional payment/EOT.

J Adriaanse[111] states 3 conditions in order for the contractor to have a successful claim for additional work: the instructed work must be *"extra"* and not part of the original work which will be performed against the contract price. 2) There must be an express or an implied promise for payment from employer to the contractor. 3) The engineer has the authority to order variations.

Furthermore, this matter must be clarified further with respect to lump sum and measurement contract as follows:

5.8.1 Lump Sum Contract

Common law considers that the lump sum contract is made to achieve a particular result; the contractor has an obligation to carry out the necessary work to achieve this objective whether such work was expressly or implicitly mentioned in the contract[112]. In *Wilson v Wallace*[113], the contractor claimed additional expenses as a result of changing

[109] The FIDIC Contracts Guide (1st edn, 2000), issued by FIDIC
[110] S. Furst QC and the Hon V. Ramsey, *Keating on Construction Contracts* (8th edn, Sweet & Maxwell, UK 2006)
[111] Adriaance J, *Construction Contracts Law*, (3rd edn, Palgrave Macmillan, London, 2010)
[112] Hudson's *"Building and Engineering Contracts"* (11th edition, Sweet And Maxwell, London, 2003)
[113] *Wilson v Wallace* [1974] 3 SA 506 where the contract was lump sum for the construction of special tanks to sustain a certain head pressure of water. The contractor claimed for additional expenses as a result of changing the method statement and using additional bolts to complete the work. The Lord President held that "…the contractor did nothing more than was necessary to make these tanks of the quality, power, and strength necessary to sustain the pressure that he was told was to be upon them and which by the general words of the contact he was bound to make them capable of sustaining. If anything for that purpose was required to be done that was not in the specification, if was the contractor's duty to supply it". Therefore the contractor's arguments failed.

the specified method statement and using additional bolts to complete the work under lump sum contract. The Lord President held that no additional entitlement to the contractor as he performed only the necessary work even though such work was not mentioned in the specification. Similar judgment reached in *Williams v Fitzmaurice*[114] where it was concluded that any part of the work which was expressly stated in the specifications or implicitly but could be possible to understand that such work was necessary to complete the work under the contract, then such work construed part of the contractor's obligations under the contract. In *Sharpe v San Paulo Railway*[115], the quantities of excavations were doubled under lump sum contract, as the drawings were inadequate. It was held that no extra payment could be recovered for the contractor.

Under UAE law, Article 887(1) of CTC[116] states that under a Muqawala contract, if the instructions which are issued to the contractor are just to comply with the agreed design (plan) in the lump sum contract, the contractor will not be entitled to additional payment. Additionally, the contractor is under an obligation to complete the work within the agreed contract price and stipulated time for completion. Therefore, the contractor will be entitled only for the sum amount, no less no more, if he carries out the whole work under the contract, the risk of any cost overrun will be his responsibility. In Abu Dhabi Court of Cassation, case 573/2002 [117] where the contractor claimed additional money as a result of changes in design. It was held that the subcontractor was liable for such additions.

Therefore, under UAE law, the request from the contractor to increase the lump sum price is generally denied unless there is a variation or an additional work, then Article

[114] *Williams v Fitzmaurice* (1858) 157 ER 709 in that case the contractor singed a lump sum price of sterling pound of 100 with the employer. But the contractor claimed additional money because he supplied material to complete the work, such material was not set out in the agreed plan. The court held that the contractor's claim was not acceptable, as the supplied material was something necessary to complete the scope of work, whether such material stated expressly or not in the specifications. Therefore, any part of the wok which is expressly or not stated in the specifications but can be possible to understand such work is necessary to complete the contracted work then it is part of the contractor's obligation.
[115] *Sharpe v San Paulo Railway* (1873) LR8 Ch. App. 597
[116] UAE Civil Code, Law # 5 of 1985, Article 887 (1)"If a muqawala contract is made on the basis of an agreed plan in consideration of a lump sum payment, the contractor may not demand any increase over the lump sum as may arise in the course of execution of such plan".
[117] Abu Dhabi Court of Cassation, case 573/2002

886 of CTC[118] will take place as it will be illustrated in section 5.8 "Work Outside The Contract"

5.8.2 Measurement Contract

The FIDIC contract is a measurement contract; which means that the work items will be measured and compensated utilizing the unit rate specified in the BOQ. Thus, the final contract price can be reached only upon evaluation of actual works. In a measurement contract, if the quantity of any item set out in the BOQ is increased, the contractor will be able to recover additional entitlements for such changes. The entitlements will be due to the contractor whether or not the changes in quantity were mentioned in the BOQ. In *Kemp v Rose*[119], it was held that the contractor was eligible for additional payments that resulted from carrying out additional works that were necessary to complete the contracted work, even though, these items were not mentioned in the BOQ.

Under UAE law, Article 886(1) of CTC[120] concludes that the contractor will be entitled to additional payment, if he executes additional necessary work under the measurement contract. However, such entitlement is restricted by a condition precedent whereby the contractor must notify the employer with the expected additional price which will be incurred by the employer. If the contractor fails to serve such a notification, then the contractor would loss his additional entitlements. After such notification, the employer must take decision, whether to continue with the additional work or withdraw from the contract.

Where there is difficulty to decide whether the requested work is part of the original work or not, such ambiguity is clarified in favor of the contractor, therefore, he will be entitled to additional payments/ EOT as held in *Patman and Fotheringham Ltd. v*

[118] UAE Civil Code, Law # 5 of 1985, Article 886
[119] *Kemp v Rose* [1858] 114 RR429; (1858) 65 ER910
[120] UAE Civil Code, Law # 5 of 1985, Article 886 "1. If a contract is made under an itemised list on the basis of unit prices and it appears during the course of the work that it is necessary for the execution of the plan agreed substantially to exceed the quantities on the itemised list, the contractor must immediately notify the employer thereof, setting out the increased price expected, and if he does not do so he shall lose his right to recover the excess cost over and above the value of the itemised list.
2. If the excess required to be performed in carrying out the plan is substantial, the employer may withdraw from the contract and suspend the execution, but he must do so without delay and must pay the contractor the value of the work he has carried out, assessed in accordance with the conditions of the contract."

Pilditch[121] where there were defective BOQ, inaccurate drawings and specifications in the contract.

The engineer may instruct variations and states expressly that such instructions are additional works. The additional works are different from what are specified in the contract and do not fall within the original work. However, the varied works have some relationship to the original contracted work and fall within the expectation of the parties at the time of concluding the contract[122]. However, if the engineer worded expressly his instructions as variations, such instructions to perform work and is considered part of the original work and does not amount to variation orders; therefore, the contractor's claim was rejected as held by Rumpff ACJ in *Alfred McAlpine v Transvaal*[123].

UAE law, Article 887(2) of the CTC[124] concluded that any addition or variation should be in correlation with the original plan.

It should be highlighted that the variation in the measurement contract is more flexible than the lump sum contract, as the latter limits the employer's ability to vary matters related to the design and scope of work[125].

5.9 Work outside the Contract

The problem of whether or not the work amounts to a separate agreement is one of the most serious issues in the construction environment as indicated by figure 10. FIDIC 87 clause 51.1 states expressly that *"No such variation shall in any way vitiate or invalidate the Contract"* [126]. Conversely, FIDIC 99 omits such a provision. The absence of similar provision in FIDIC 99 may be unwise. This provision is crucial and essential to emphasis its primary function that if the additional work is radically different in

[121] *Patman and Fotheringham Ltd. v Pilditch* (1904), Hudson's Building Contracts (4th edn, vol 2) In that case the contract was for construction of a number of flats against lump sum money. Channell J held that the quantities which were stated in the BOQ were part of the contract documents; therefore, the contractor was entitled for additional payments to the contract sum. He stated that "…were therefore entitled to recover for all work done by them in completing the contract which had been omitted from or understated in the bills of quantities.. " because if an item is omitted from the BOQ or specification, that does not necessary mean that the employer must compensate for "things that everybody must understand are to be done, but which happen to be omitted from the quantities". The BOQ was deficient when compared with drawings. Moreover, there was uncertainty about the presumptive purpose of BOQ, to what it was intended to serve.
[122] Adriaance J, *Construction Contracts Law*, (3rd edn, Palgrave Macmillan, London, 2010)
[123] *Alfred McAlpine v Transvaal Provincial Administration* (TPA) 1974 (3) SA 506 (A),
[124] UAE Civil Code, Law # 5 of 1985, Article 887(2)
[125] "Al-Saadoon O, "*Re-thinking price in the UAE"*, (2007), Al Tamimi &Company, Law update"
[126] FIDIC 87, Clause 51.1 *"..No such variation shall In any way vitiate or invalidate the Contract,…"*

nature, fundamentally changes the original work, and these changes fall outside the expectations/ contemplations of the contracting parties[127], then such changes will fall outside the contracted work[128]. For example, the engineer cannot issue variation to construct airport instead of bridge. John Murdoch[129] exemplified that if the contract is to construct 8 dwellings and a variation order is issued to include additional 4 dwellings, then such changes go the root of the contract, therefore, such changes are outside the contract. But if the contract calls for 1008 dwellings and variation is to add 4 dwellings, then such change will not go to the root of the contract because it construes minor changes.

Equivalently, a similar rule applies in the event of substantial omission. In *Melbourne Harbour v Hancock*[130] the contract price was stealing pound 130,000. The employer omitted work worth of stealing pound 55,894 from. It was held that any change which entirely changed the character of the work was not allowed.

Often the contractor tries to avoid this dilemma and loss of money that resultes from these extensive changes[131] which alter the entire character of the work. Under English

[127] *Sir Lindsay Parkinson & Co Ltd v Commissioners of His Majesty's Works And Public Buildings* [1949] 2 KB 632; [1950] 1 All ER 28 The contract was cost plus profit, the contractor argued that the excess work which was instructed by the employer "the commissioners" was not in contemplation of the parties by the varied contract. The amount of the variation exceeded 100% of the original contact amount (from USD 3,500,000 with USD 500,000 in BOQ, but the actual amount reached USD 6,683,056). As a result of that there was a delay in the time for completion of the project, therefore, the employer ordered variation to accelerate the time for completion with an estimate of USD 5,000000.[127] The court of appeal held that the employer should not be entitled to instruct work materially exceeds the contract sum, and fundamentally different from the contracted work, though he had contractual absolute power to instruct for variation. Such variation was in excess of extent contemplation of the agreed contract, therefore, the contractor would be entitle for additional reasonable profit/ remuneration upon a quantum meruit basis, as he carried out the work in complying with the instructions of the employer.
Cohen LJ at page 224 and 225 held:
"The work executed so far exceeded the stipulated work, that is to say, the work comprised in the original estimate of £4 million that it seems to me, to use the language of counsel for the commissioners, fantastic and absurd to suppose that such a large increase as, in fact, occurred was within the contemplation of the parties when the deed of variation was executed. We are, I think, amply justified (a) in reaching the conclusion that the basis of the varied work measured approximately by the said sum of £5 million, and (b) in implying a term that the commissioners should not be entitled under the contract to require work materially in excess of that sum. It follows that, such excess work having been done by the contractor at the request of the commissioners, the commissioners are liable to pay the contractor reasonable remuneration therefore."
The employer instructed work of a total value of 6,600,000 but it was held that on its true construction the variation only gave the Commissioners authority to order work to the value of 5,000,000

[128] Adriaance J, *Construction Contracts Law*, (3rd edn, Palgrave Macmillan, London, 2010)

[129] Murdoch J and Hughes W, "*Construction Contracts Law and Management*" (4th edn, Taylor & Francis, Oxon 2008)

[130] *Melbourne Harbour Trust Commissioners v Hancock* [1927] HCA 26; (1927) 39 CLR 570

[131] J Murdoch and W. Hughes "*Construction Contracts And Management*" 4rd edn, Taylor & Francis, Oxon 2008) "..variations that go to the root of the contract are not permissible"

law[132], the contractor will not be bound to execute such changes and he can claim new rates based on renegotiation; new separate agreement or quantum meruit with faire remuneration as held by Rumpff ACJ in Alfred McAlpine[133] and in *Blue Circle v Holland Dredgingand*[134]*, and Costain v Zanen Dredging*[135]. However, this issue can still be controversial, and not easy to be determined as demonstrated in *McAlpine Humberoak v McDermott International*[136].

Comparably, under UAE, Article888 of CTC[137] stipulates that in the event that the contractor carries out additional works which depart considerably from the original plan (fall outside the contract), and the contract does not specify applicable rates/ prices for the compensation for such work. Then, the contractor has protected by law and he will be able to claim on "faire remuneration" basis together with the cost of material and labor that he has supplied. It may be presumably envisaged that this can be considered as cost plus contract.

5.10 Omission

The variation may include omission. FIDIC 99 13.1 (d) states that "*Omission of any work unless it is to be carried out by others*".

Whereas FIDIC 87 clause 51.1(b) states that "*omit any such work (but not if the omitted work is to be carried out by the Employer or by another contractor)"*

[132] "Dimitracopoulos A and Niekerk A , '*Separated At Birth, Or Long Distant Cousins?'* (2005) Law Update"
[133] Rumpff ACJ in Alfred McAlpine. "The employee may receive and accept an instruction which cannot be regarded as falling under the original contract…the employee is entitled to fair remuneration for that work".
[134] *Blue Circle Industries PLc v Holland Dredging Company* (UK) Ltd (1987)37 BLR 40 a variation was issued to instructed the contractor to construct new artificial bird island in order to dredge the material therein instead of dredging it in the disposal site which was stated in the contract. The court held that the variation order was out of scope of work and amounted to new separate contract and the subcontractor eligible to be paid on a quantum meruit basis
[135] *Costain Civil Engineering Ltd v Zanen Dredging and Contracting Co Ltd* (1996) the employer instructed to use the void to construct marina instead of backfilling the casting bay which was set out in the contract.
[136]*McAlpine Humberoak v McDermott International* [1992] 58 BLR 1 In that case the drawings numbers were increased from 22 drawings which were set out in the contract to 161 drawings as a result of design changes. The trial judge held that such variation was so significant, and amounted to a new contract. But the court of appeal held that these changes could be accommodated under the contractual variation provisions.
[137] Article 888 of CTC "If the consideration for the work is not specified in a contract, the contractor shall be entitled to fair remuneration, together with the value of the materials he has provided as required by the work".

The survey queried: Do the stakeholders think that the underlined provision under FIDIC 1999 shows ambiguity when compared to its equivalent under the FIDIC 1987?

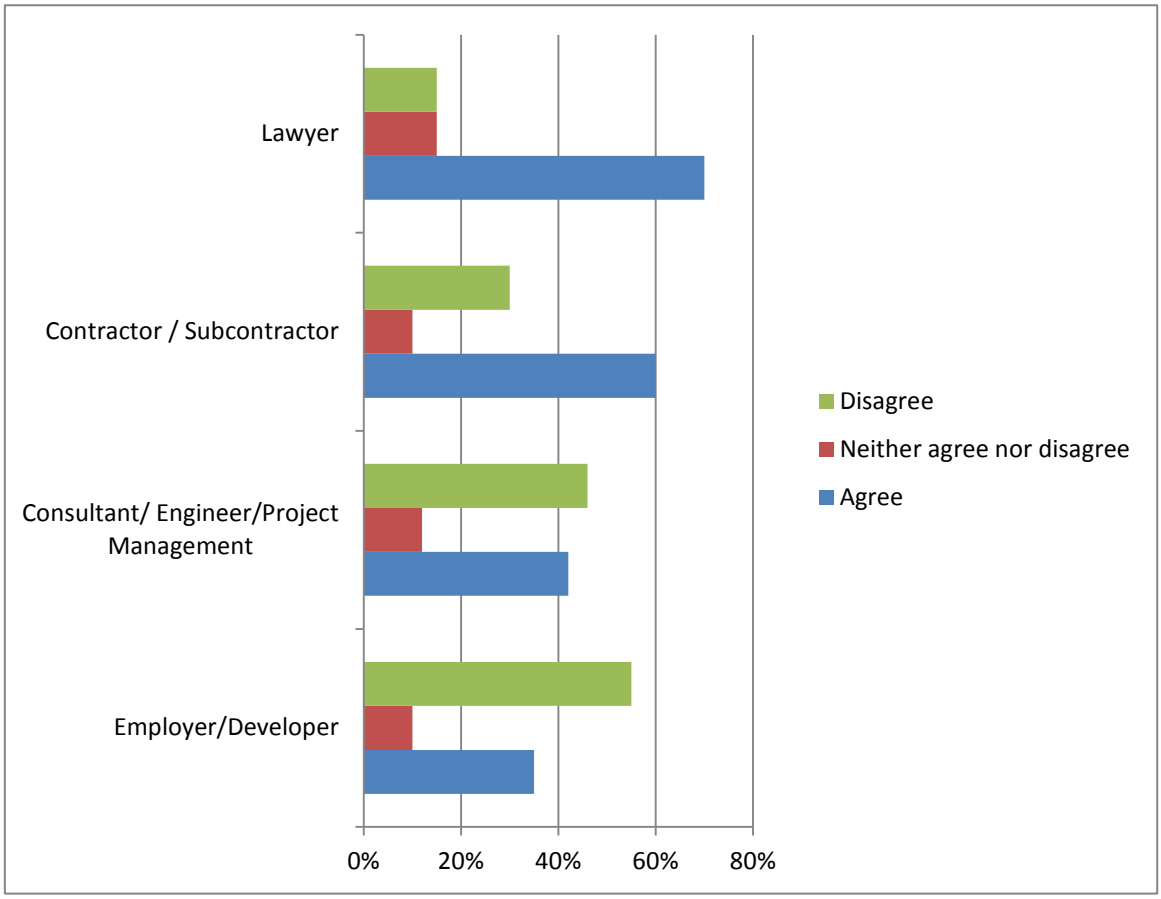

Figure 13: Ambiguity Of The FIDIC 99 Clause 13.1(d) Regarding the Drafting Of The Omissions Provision

Figure 13 indicates that 70% and 60% of lawyers and contractors respectively have major concern with regard to the clarity of the omission provision of the FIDIC 99. Whereas, 55% of employers disagree with the ambiguity concept of FIDIC 99's provision, also, (50%) of the engineers like the provision of the FIDIC 99. Additionally, figure 13 illustrates that the employers prefer the ambiguous term provided in the FIDIC 99. The smart employer can argue that he will be able to carry out the omitted work by himself, as there is no express provision preventing him from doing this act, as he may interpret" *the others*" as it refers to another contractor but not to the employer himself. While the lawyers and contractors do not like the wording in this provision as they would like to have more stringent wording prevent significantly the employer himself from executing the omitted work.

Clause 13.1(d) of FIDIC 99 empowers the engineer to omit any part of the work; however, Keating[138] states that the engineer has no power to assign the omitted work to another contractor. Therefore, it is not allowed to award omitted work to another contractor who can carry it out with cheaper prices, or with better quality, or able to complete the work faster. In addition, Hudson[139] states expressly that it is not permitted that the employer performs the omitted work himself. Therefore, it is not allowed that the employer himself or his agents or other companies that the employer or his relative has an interest in, or a share of. Furthermore, the omitted work should be genuine[140]; part of the work under the contract, and true; the employer should not want to carry out the omitted work at all[141].

Therefore, the real intention from the omission provision is that the employer himself or another contractor cannot execute the omitted works. This intention is spelt out unequivocally under the express provision of FIDIC 87. In contrast, the FIDIC 99 provision changed the wording from the clear terms of FIDIC 87 *"by the employer or another contractor"* into a vague one as it drafted using the word *"others"*. This will lead to different interpretations and doubts: for example, what is the exact meaning of "*by others"* in this clause, and who are the parties who cannot perform the omitted work. Is it the employer, the contractor or both?

Furthermore, the wording in the FIDIC 99 provision, undoubtedly, appears less precise when compared to its equivalents under other FIDIC construction contracts, for example, in the Yellow, Silver, and Gold books, it can be found that the clause is worded in a more precise, accurate manner. It states that *"A variation shall not comprise the omission of any work which is to be carried by others"*. Moreover, the unscrupulous employer could execute omitted work himself and argue that the term*" the employer himself"* is singled out by the FIDIC 1999 under clause 15.5 *"Employer's*

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[138] S. Furst QC and the Hon V. Ramsey, *Keating on Construction Contracts* (8th edn, Sweet & Maxwell, UK 2006) *"it (the power to omit work) may not give the Employer the right to omit part of the work from the Contract with the object of giving it or similar work in substitution to another Contractor."*

[139] Hudson's *"Building and Engineering Contracts"* (11th edition, Sweet And Maxwell, London, 2003) *"the owner will generally not be entitled to use the power to omit work from the contract works in order to give it to another contractor to do, or to do the work himself".*

[140] Ibid

[141] Ibid, provided that "The Contractor, however, is entitled to perform all the contract work, so that a provision giving the owner or his A/E a power to make omissions only contemplates genuine omissions, that is, work which it is intended should not be carried out at all. The owner will generally not be entitled to use the power to omit work from the contract works in order to give it to another contractor to do, or to do the work himself, whether under provisions similar to the above clause or otherwise"

Entitlement to Terminate" [142] which expressly points out that the employer shall not be entitled to execute the terminated work by himself or with another contractor, whereas, such express prevention was not stated under the omission provision of FIDIC 99, therefore, "I could do it".

As has been proved, the wording in FIDIC 99 with regard to the omission provision is poorly drafted and lacks clarity and precision, as it may allow the employer to execute the work himself, the thing which is rejected and disliked by the contractor as illustrated in the figure 13.Therefore, it would be more precisely for FIDIC 99 to apply similar wording stated in the termination provision and apply it in the omission provision.

The survey also asked: Do the stakeholders think that the provision "*such omission not to done by others*" of the FIDIC 99 clause 13.1(d) will not survive in the UAE and will be crossed out by the Employer/Engineer, in the tender documents?

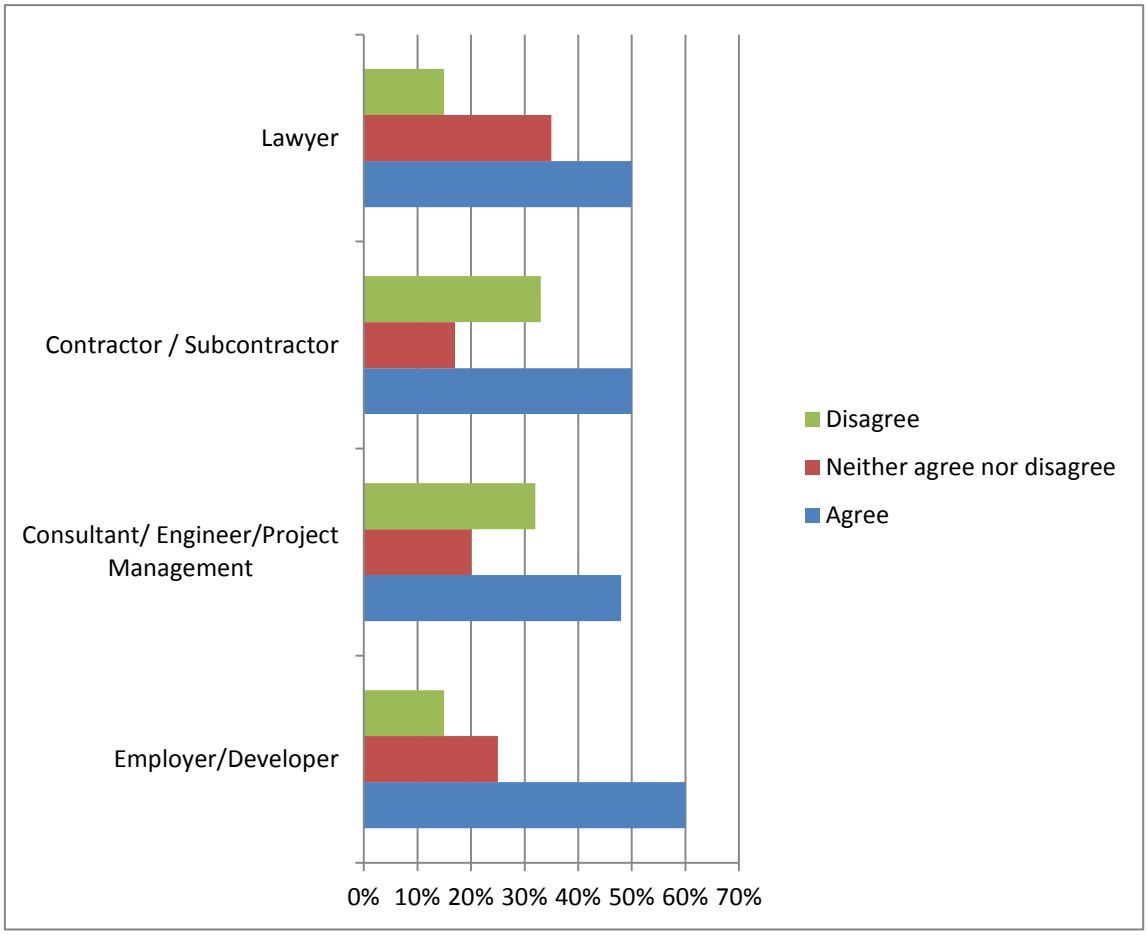

Figure 14: Whether The Employer/ Engineer Will Cross Out The Term "unless to be carried out by others" Stated In FIDIC 99 Clause 13.1(d)

[142] Clause 15.5, FIDIC 99

Figure 14 demonstrates that all stakeholders, with the highest percentage going to the employers (60%), clarified that the provision "*such omission not to done by others*" of the FIDIC 99 clause 13.1(d) will be deleted by the employer/ engineer in the tender documents. This could happen in bespoke contracts where the employer sometimes attempts to escape liability of executing the omitted work himself or by another contractor.

However, if the contract is silent about this issue, the concept of preventing the employer from executing the omitted work is implied in law. Because if the employer performs the omitted work himself or with another contractor, he will be in breach of contract and the contractor will be able to recover compensation, as demonstrated in several jurisdictions. In the Australian case, *Carr v JA Berriman*[143], Fullagar of the High Court considered the absolute power of the architect was unreasonable power and there were no very clear words in the contract to confer the omitted work to another contractor[144]. Furthermore, in *Commissioner for main Roads v Reed & Stuart*[145], it was held that the contractor should have the opportunity to carry out the whole awarded work, and the architect could not appoint another contractor to perform the omitted work[146]. Similarly, *Amec v Cadmus*[147] confirmed the same principle.

[143] *Carr v JA Berriman* (1953) 89 CLR 327

[144] "The words quoted from it would authorize the Architect to direct the particular items of work included in the plans and specifications shall not be carried out. But they do not, in my opinion, authorize him to say that particular items so included shall be carried out not by the builder with whom the contract is made but by some other builder or contractor. The words used do not, in their natural meaning, extend so far, and the power in the Architect to hand over at will any part of the contract to another contractor would be a most unreasonable power, which very clear words would be required to confer."

[145] *Commissioner for main Roads v Reed & Stuart Pty Ltd* 1974] 48 ALJR 461, the contract was to construct a road. The specification provided that if there was no sufficient topsoil the work site, then the engineer may instruct the contractor to obtain the required topsoil from another areas. But the engineer did not do so, but omitted the work from the contractor and appointed another contractor to supply and spread the topsoil instead. Stephen J in the high court of Australia held that the contractor should carry out the whole awarded work. And he reviewed the power of the variation clause in the contract, and stated that it was not permitted to take away part of the work to be performed by third party contractor. Therefore, it was a breach of contract and the contractor entitled for damages.

[146] "Were he [the Enginee] legally entitled to do so [i.e. appointing others to perform the omitted work] it would, I think, run counter to a concept basic to the contract, namely that the contractor, as successful tenderer, should have the opportunity of forming the whole of the contract work. By the contract the contractor has covenanted that for the bulk sum of almost £5 million it would perform the works and supply all the materials shown in the other contract documents. That this included the placing of all topsoil called for by the contract drawings is clear….clause 18 is a common enough provision to be found in engineering contracts and permits of the omission from time to time by the proprietor of portion of the contract works. What is clearly enough does not permit is the taking away of portion of the contract works from the contractor so the proprietor may have it performed by some other contractor - Carr v JA Berriman Pty Limited (1953) 89 CLR 327. This was what the engineer sought to do in the present case in relation to spreading of topsoil."

In the USA case *Gallagher v Hirsh*[148], the New York Supreme Court held that the omission meant not to do the work at all. This meant that the employer was in breach of contract as he omitted the additional necessary work and gave it to another contractor who provided a lower price[149]. In the English case *Abbey v PP Brickwork*[150] his honor judge Humphrey Lloyd in the TCC[151] stated that the omission provision required reasonably clear words in the contract in order for the employer to confer the work to another contractor.

FIDIC 99 empowers, in express wording, the employer to carry out the work himself or to pay to another contractor to perform such work in specific circumstances which are spelt out under two clauses: clause 17.6 *"Remedial work"* [152]; if the contractor fails to comply with the engineer's instructions regarding the conformity and safety of the work. In addition, clause 11.4 *"Failure to Remedy Defects"* [153]; if the contractor fails to meet the notification date specified in the notice given by the engineer to rectify any

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[147] *Amec Building Ltd v Cadmus Investments Co Ltd* (1996) 51 CLR 105, The contract was for construction of shopping center with a food court included in the provisional sums in the original contract. The employer withdrew the food court from the provisional sums. The arbitrator decided that Amec was entitled for the loss of profit of sterling pound 12,800 plus statutory interests as a result of omitting provisional sum from the contract. The arbitrator's decision was reconfirmed by the judge when Cadmus referred the case to the court, and stated that it was not permissible for the employer to arrange to perform the work by another contractor.

[148] *Gallagher v Hirsh* (1899) NY 45 App. Div 467

[149] *"This, we think was a correct interpretation of the clause in question. It is evident that under the word "omissions" were intended to be included those things which were abandoned and left out of the Plaintiff's contract, and not such as were taken out of the Plaintiff's contract, and given to another to be performed. The word "omissions" did not mean omitted from the Plaintiff's contract, but omitted from the work, and clearly could not be construed to have allowed the Defendant to take two thirds of the work from the Plaintiff, and then compel him to perform the rest. The words are, "additions or omissions from said contract", evidently meaning additions to or omissions from the work to be done under the said contract, which clearly negatives the idea that they were intended to mean that the Defendant should have the right to omit the work from the Plaintiffs' contract, in order to give the contract to another to do the same thing."*

[150] *Abbey Developments Ltd v PP Brickwork Ltd* [2003] Adj LR 07/04 where Abbey sought to terminate the labor subcontract with PP Brickwork as Abbey repeatedly complained the progress of the PP Brickwork. Then Abbey decided to terminate the contract with PP Brickwork and appoint another contractor. Abbey sought declaration that its action was correct. The subcontract provided that Abbey could change the volume of the work and renegotiate the prices, or Abby could refer to suspension and retender without terminating the contract. His honor judge Humphrey Lloyd said that omission provision needs reasonably clear words" in order for the employer to confer the work to another contractor. Also, he said that such clauses did not stated remedy for such action, then this clauses would be treated as "unenforceable as unconscionable". He emphasized on the purpose of the variation clause, by stating that *"…it turns out that the variation was not ordered for a purpose for which the power to vary was intended, then there will be a breach of contract". therefore, he denied Abbey's request and consider the clause lacked the "necessary clarity of expression"*. The clause allowed only to change the quantity of work, and deleting the work which was no longer needed for the contract.

[151] Technology And Construction Court

[152] Clause 17.6, FIDIC 99

[153] Clause 11.4, FIDIC 99

damaged/ defective works, the employer has the option of performing the work himself or by others at the cost of the contractor. Therefore, only these situations entitle the employer to carry out the omitted works by himself or another contractor or nominated subcontractor[154], but keep in mind that such express permission for the employer to carry out omitted works is not found under the variation clauses, they fall under contractor's default.

In the UAE, it is not allowed for the employer to do the work himself or by another contractor, as such an act may contravene with the principle of *"Good Faith"* which is an essential element in the contract as stipulated under Article 246 (1) of CTC[155]. There is an implied promise from the employer to the contractor that the contractor will execute the whole work and not part of it, but if the employer takes away works from the contracted work, this can be construed as a breach of such a promise. Furthermore, variation provision under FIDIC 99 states that the omitted work shall be necessary work for the completion of the project. For example, if the employer wants to reduce the light lamps from 100 to 80 ones, as he considers that 80 lamps will be enough to produce sufficient light, then omitting 20 lamps can be considered as necessary work. But, if the contract is for building 1000 villas and a substantial variation[156] is made to omit 500 villas, such omission touches the root of the contract, consequently, the variation will be considered as work outside the contract which is an invalid variation as discussed earlier.

In Dubai, during the financial crunch in 2008, the employer who claimed that he did not have money to complete the project and omitted works from the project, in an attempt to save his money, could not succeed in his claim under FIDIC 99. FIDIC 99 clause 2.4 *"Employer's Financial Arrangements"* requires the employer to submit reasonable evidence confirming the availability of the money with the employer. Otherwise, he will be in breach of contract.

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[154] Chappell D, Powell-Smith V & Sims J "*Building Contract Claims*" (4edn, Blackwell Publishing, Oxford, 2005)

[155] Article 246 (1) of UAE Federal Law No: 5 of 1985,

[156] S. Furst QC and the Hon V. Ramsey, *Keating on Construction Contracts* (8th edn, Sweet & Maxwell, UK 2006) provided that:*"The Contract usually gives the Employer or the Architect power to order part of the work to be omitted with the consequent adjustment of the contract price. There is little English authority dealing with the exercise of such a power. On the construction of the Contract it may not extend to the ordering of variations, and it may not give the Employer the right to omit part of the work from the Contract with the object of giving it or similar work in substitution to another Contractor."*

5.11 Acceleration

Acceleration issue is appeared to be one of the most serious problems in the construction field as demonstrated by figure 10.

FIDIC 99 Clause 13.1 (f) *"Changes to the sequence or timing of the execution of the Works"* [157].

Whereas FIDIC 87 clause 51.1 (f) *"Change any specified sequence or timing of construction of any part of the Works"*[158].

The survey asked that: Do the stakeholders think that the provision under FIDIC 1999 shows less detailed/ accuracy when compared to its equivalent under FIDIC 1987?

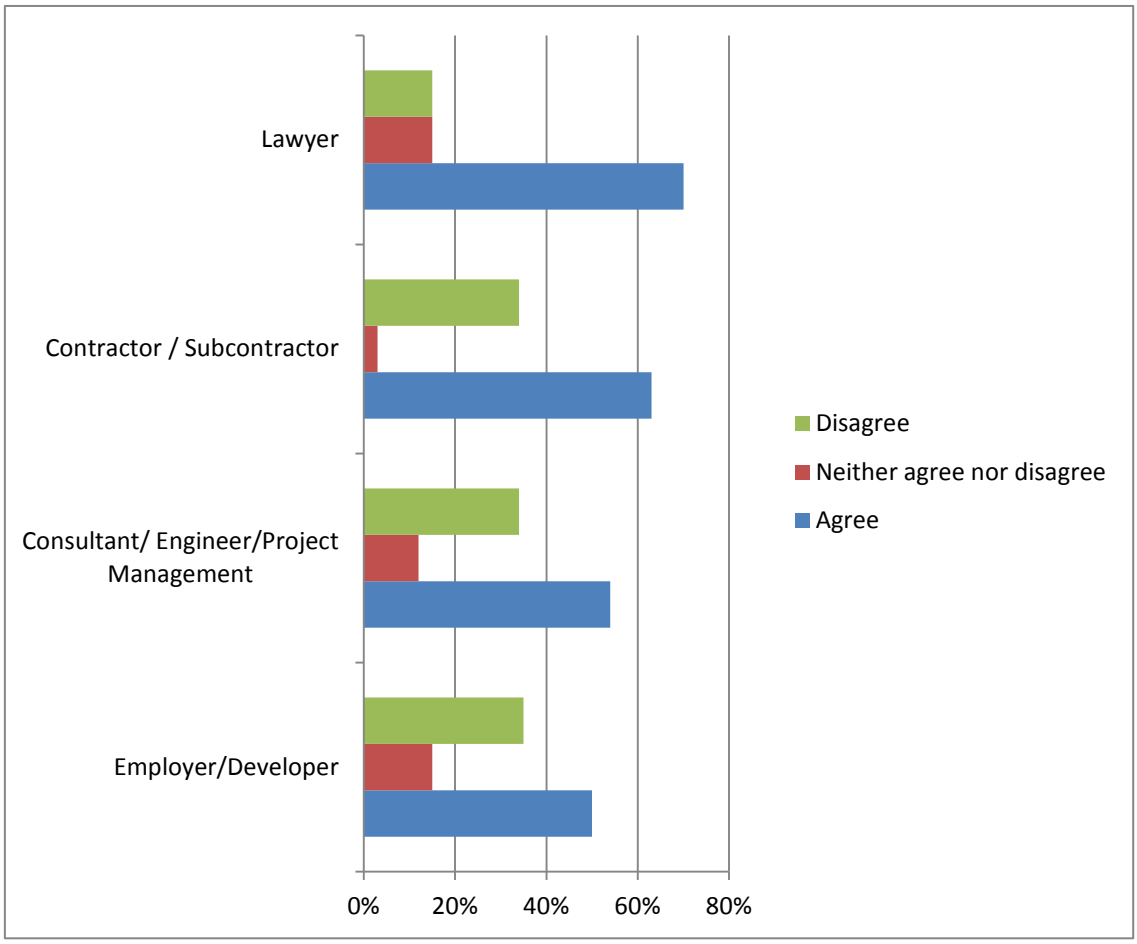

Figure 15: Whether The FIDIC 99 Clause 13.1(f) Regarding The Acceleration Shows Less Detailed/ Accuracy When Compared To Its Equivalent Under FIDIC 1987?

[157] Clause 13.1 (f), FIDIC 99
[158] Clause 51.1, FIDIC 87

Figure 15 shows that all parties provide their agreement that the provision 13.1 (f) of the FIDIC 99 drafted with less accuracy when compared to its partner under the FIDIC 87. The lawyers have the highest percentage (75%) of agreement, followed by the contractor (63%). Therefore, the amendment of the provision 13.1 (f) of the FIDIC 99 is highly regrettable by the most of the construction professionals.

The significant word between the two provisions is that the word *"specified"* stated in the provision of FIDIC 87. Under the FIDIC 87 provision, the power to vary the sequence/ timing of the construction is limited only to the specified sequence/ timings which are set out in the specifications/ contract by the employer. Therefore, this issue is under the responsibility of the employer[159] and not the contractor, consequently, the contractor cannot exercise changes on any other sequences or timings unless they are specified. Whereas, FIDIC 99 provision provides that changes can be exercised on all sequences/ timings whether they are specified or not, such changes may have an adverse effect, as the contractor can claim variation each time he changes his program and can argue that the new program includes changes to sequences and timing of the work. Such changes will be under the responsibility and control of the contractor and not the employer which may not be sensible as the employer is the owner of the project and he is in more of a position to decide his priorities and change sequence or timing of any portion of the work.

Another point that occurs from comparing these two counterparts/ provisions is that the FIDIC 87 provision provides that *"any part of the Works"* which gives the flexibility to change the sequence/ timing for any part of the work in accordance with the employer's requirements and priorities. For example, the employer may wish to delay completion part of the project, as the commencement of such part is dependent on the finishing of other related works. Whereas, FIDIC 99 provision provides that these changes can only be exercised on the whole work as it specified the word *"the Works"* capitalizing its first letter which does not refer to a part of the works but refers to the whole works, as the *"Works"* [160] is defined under clause1.1.5.8 of FIDIC 99. If the employer tries to change the sequence/ timing of a part of work, he will be faced with potential claims

[159] Guide to the use of FIDIC condition of contract for works of civil engineering construction, fourth edition. Issued by FIDIC "federation international des ingenieurs-conseils'
[160] Clause 1.1.5.8 "Works", FIDIC 99

from the contractor. Therefore, the equivalent provision of the FIDIC 87 would be more practical and more appropriate in this situation.

Furthermore, the survey asked: Under FIDIC 99 (and even in FIDIC 87), there is neither definition nor express clause called "Acceleration". This amounts to an ambiguity and creates disputes with regard to the situation where the Contractor will be entitled to additional acceleration costs. Do the stakeholders agree with this sentence?

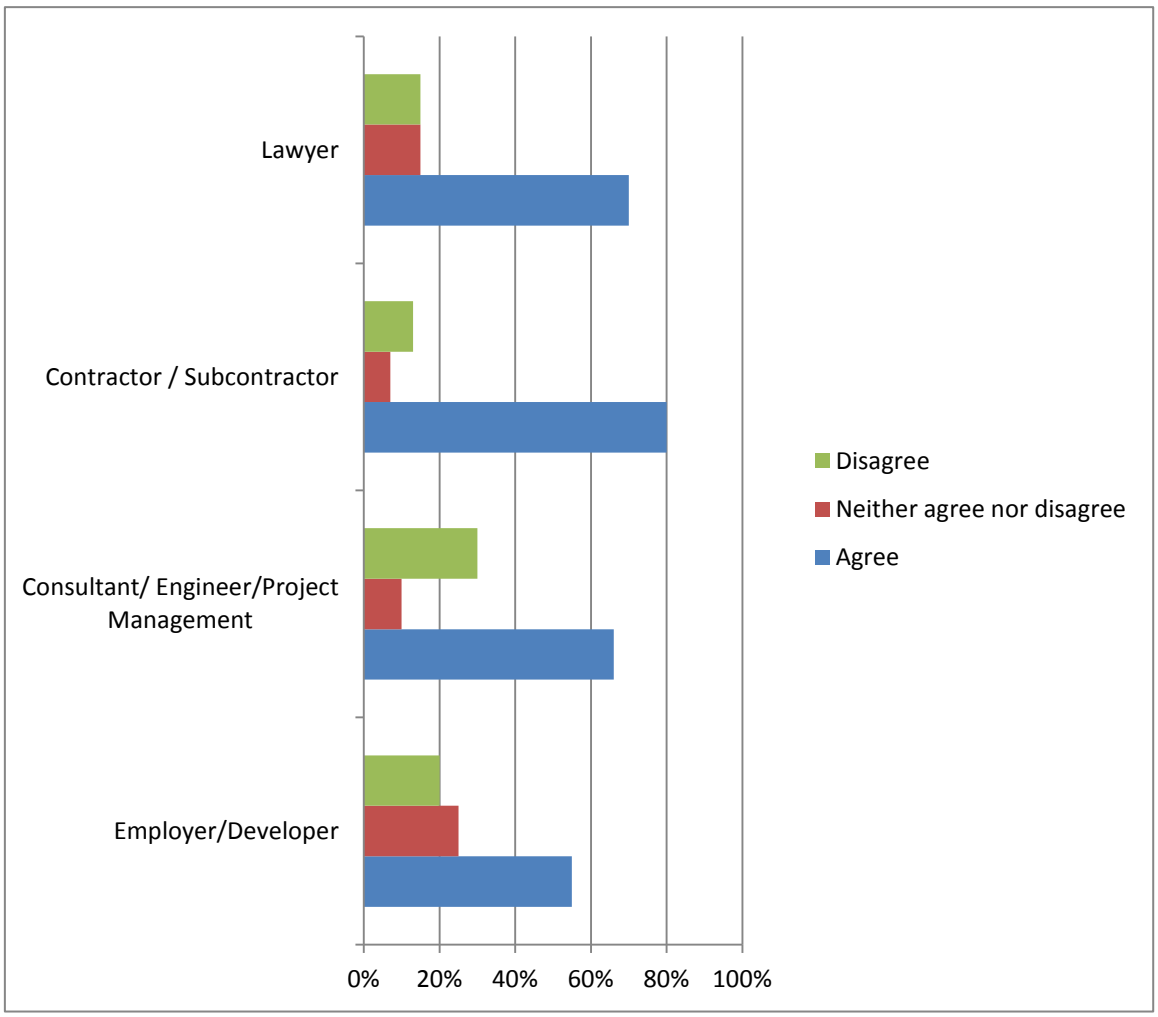

Figure 16: Whether The Stakeholders Agree With The Statement That Not Having Definition For Acceleration May Lead To Ambiguities And Disputes

Figure 16 demonstrates that all stakeholders would like to have a definition for accelartion in the contract. 80% of contractors would like to have a definition for the accelaration in FIDIC 99, even though they are allowed to submit a value engineering proposal for acceleration[161] in accordance with clause 13.2. This may give an indication

[161] Nael G. Bunni, *"The FIDIC Forms of Contract"*, (3rd edn, Blackwell Publishing, Oxford, 2005)

that the contractors have sufferd a lot from the lack of this definition in the past. However, the contractors should not expect that any instruction from the engineer to vary/ speed up the works construes a variation / acceleration order that entitles him to additional payment. In principle, the contractor has an obligation for expedition as provided in clause 8.1[162] of FIDIC 99, which states that the contractor has to carry out the work *"with due expedition and without delay"*. Though FIDIC did not provide the definition for *"due expedition"* which may provide ambiguities and uncertainties. But due expedition or due diligence is often required as a result of delay of the contractor who should take all necessary measures to cover such non excusable delay at his own risk and cost. Moreover, the prudent contractor shall carry out all reasonable steps and do his best endeavors[163] in order to minimize the delays which result from different or changed conditions. Such steps include rescheduling the works in a different way, rescheduling the manpower, or revising the program of work. These steps should have minimum or insignificant mitigation cost impacts on the contractor. Therefore, if the contractor fails to take the necessary measures to mitigate the delays, or refuses to comply with engineer's instructions, then he may not be entitled to compensation.

In *Ascon v Alfred McAlpine*[164], the subcontractor (Ascon) carried out some concrete works. There was a delay in the work because of several reasons part of which was caused by Ascon. Ascon submitted a mitigation [165] and acceleration claim which included additional costs and an EOT resulted from taking acceleration measures in order to mitigate the delays. It was held that Ascon breached its contractual obligations which required them to proceed with the work reasonably in accordance with the progress of the main contractor works.

In the UAE, for example, the contractors had new rules imposed on them regarding the break timing in the summer season. These rules prevent the contractors' staff from working at the site during the sun's peak period for health and safety reasons. The contractor argued that these rules caused a delay in the work, and claimed acceleration

[162] *FIDIC Red Book* (5th edn, 1999), Clause 8.1 "the contractor.... shall then proceed with the Works with due expedition and without delay"
[163] Chappell D, Powell-Smith V & Sims J "*Building Contract Claims*" (4edn, Blackwell Publishing, Oxford, 2005)
[164] *Ascon Contracting Limited v Alfred McAlpine Construction Isle of Man Limited* [1999] Con LR 119; CILL 1583 & LTL
[165] "Brian Eggleston *Liquidated Damages and Extensions of Time: In Construction Contracts*, Wiley – Blackwell, 3rd edn, Oxford)"

costs in order to meet the time for completion. Such a claim could be denied by the application of clause 8.6 FIDIC 99 *"Rate of Progress"* [166] which states that if the actual progress is too slow to complete the project on time[167], or the progress shows delays when compared to the current program, the contractor is under an obligation to submit a program with revised methods at his own risk and cost, and if the employer incurs additional expenses as a result of such revision, the employer can claim these costs under clause 2.5[168]. However, clause 13.1(f) of FIDIC 99 should be redrafted to take into consideration the discussion provided earlier.

Additionally, if the acceleration is concluded as a constructive acceleration[169], the contractor will be more likely to be eligible for acceleration costs as demonstrated in *Motherwell v Micafil Vakuumtecchnik*[170]. Motherwell was the subcontractor to fabricate a steel vessel and was obliged to accelerate the work to complete the project on time when their claim for EOT was rejected by Micafil. Moreover, Micafil did not issue instructions to accelerate the work and threatened the subcontractor with liquidated damages. Thereafter, Motherwell submitted a claim for the acceleration costs. Judge Toulmin held that the subcontractor was entitled to the recovery of the acceleration costs.

In other types of construction contracts, such as ICE[171], it can be found that ICE incorporated expressly provision for the acceleration under clause[172] 47(3); moreover, it

[166] Clause 8.6. FIDIC 99
[167] "James Williams, "*the Heat is on"*, (2010), Law update, AL Tamimi Company"
[168] Brian W, Totterdill, *FIDIC User's Guide: A Practical Guide to the 1999 Red Book*, 2006
[169] Constructive accelerations: is implied or inferred acceleration whereby the engineer does not give express clear instructions for acceleration. Here, the contractor is in excusable delay which did not happened as a result of the contractor's fault, but could be occurred as the result of the fault of the employer/ engineer himself. For example; the engineer took long time to approve design/ drawings, without which contractor cannot be able to continue working. This type of acceleration is the most complicated, whereby the contractor will be forced to accelerate, as the engineer refused to grant the contractor his rightful entitlements which include the additional costs/ EOT, moreover, the engineer threatened the contractor with the application of the delay damages.
[170] *Motherwell Bridge Construction Limited v Micafil Vakuumtecchnik and another* (2002) TCC 81 CONLR44
[171] *ICE Conditions Contract* (7th edn,1999), acceleration is provided expressly under clause 47(3) which stated that "the employer may request the contractor to complete the works earlier than 'the time or extended time for completion prescribed by Clauses 43 and 44 as appropriate". Clause 43 refers to the completion date in the Appendix to the Form of Tender, clause 44 refers to extensions of time. If the employer requests the contractor to complete early and the contractor agrees, then "any special terms and conditions of payment shall be agreed ... before any such action is taken"
[172] *ICE Conditions Contract* (7th edn,1999) Acceleration can be found expressly under clause 47(3) provides that "the employer may request the contractor to complete the works earlier than 'the time or extended time for completion prescribed by Clauses 43 and 44 as appropriate". Clause 43 refers to the completion date in the Appendix to the Form of Tender; clause 44 refers to extensions of time. If the

provides a specific definition and particular procedure for the evaluation of the acceleration. Such clause, certainly, clarifies potential ambiguities/ confusions to the circumstances and the evaluation of acceleration, since the parties can refer directly to this clause in the event that any acceleration issue arises. In the absence of the acceleration clause, a new provision is required to be incorporated into the existing contract or to a separate agreement can be executed.

Mr. Vincent stated that under FIDIC 99 there is no provision to complete the project ahead of time.

employer requests the contractor to complete early and the contractor agrees, then “any special terms and conditions of payment shall be agreed ... before any such action is taken”

Chapter 6 Evaluation of Variations

Chapter 6 addresses and provides comparative analysis over the issues which may arise out of the interpretations and applications of clause 12.3 *"Evaluation"* of the FIDIC 99.

6.1 Qualification For New Rate

FIDIC 99 clause 12.3 provides that the starting point for evaluation of a variation is to consider the rate/ price of each item of work which is set out in the contract (the contracted rates). If there is no contracted rate/ price for a particular item, the rate of similar item will be used. Similar conditions are found in FIDIC 87 clause 52.1.

Clause 12.3 (a) is considered as distinctive feature of FIDIC 99 with no counterparts under FIDIC 87. This clause lists 4 criteria that must be fulfilled to develop new rates; they are:

> (i)"*the measured quantity of the item is changed by more than 10% from the quantity of this item in the Bills of Quantities or other Schedules"*
>
> (ii) "*this change in quantity multiplied by such specified rate for this item exceeds 0.01% of the Accepted Contract Amount."*
>
> *(iii)"this change in quantity directly changes the Cost per unit quantity of this item by more than 1%"*
>
> *(iv)"this item is not specified in the Contract as a fixed rate item"*

This list provides expressly the limitation of the extent by which the adjustments can be made to the unit rate and considered that the changes in quantity by more than 10% per item as the threshold value to adjust the unit rate. Therefore, the problem that appeared in *Mitsui v Attorney-General of Hong Kong*[173] was solved. In that case Lord Bridge in the Privy Council held that the quantities which were more than the expected ones stated in the contract documents amounted to variation. In that case, one item increased by 8% and other item increased by 73%. In the contract, there was no threshold value to determine whether the percentage of changes in quantities amounted to a new rate or not. Furthermore, this provision focuses on identifying the factual situations[174] by which

[173] *Mitsui v Attorney-General of Hong Kong* (1986) 33 BLR
[174] Edward Corbett, *FIDICs New Rainbow 1st Edition- An Advance?*, International Construction Law Review

the appropriate rate will be established whether there is express variation or not[175]. Therefore, this clause is not so much linked with variation, but linked to the difficulty of changes in quantities regardless of express variation[176].

The evaluation will be built up based on the appropriateness test by which the appropriate rate is defined as the rate of the work specified in the contract[177] or the rate of similar work. Such a definition is an attempt by FIDIC 99 to limit the room for disputes[178]. In contrast, FIDIC 87 states that the new rate under clause 52.2 and 52.3 will be considered as appropriate/ applicable rate based on the opinion of the engineer, as these two provisions are expressly tagged with the term *"in the opinion of the engineer"*. But the terms *"in the opinion of the engineer "*are abolished under FIDIC 99, therefore, no more subjectivity and this may lead to fewer disputes as confirmed by Mr. Vincent and Mr. Peter commented that the term *"in the opinion of the engineer* "is an objective test and does not rely on objective or defined matters. FIDIC 99 negates such subjectivity and relies on factual circumstances.

However, FIDIC 99 clause 12.3 states that the new rates can be established, if there is no relevant contracted rate/ price, from the reasonable cost of performing the works with reasonable profit. But what is reasonable cost and profit? As what is reasonable for the employer may not be reasonable for the contractor, therefore, the term *"reasonable"* is still a subjective term and FIDIC 99 provides no definition for it.

MDB[179] recognized such subjectivity and corrected it in its harmonized edition, as it specified the percentage of the profit as one-twentieth (5%) of the cost under clause 1.2 *"Interpretation"* in order to solve this issue.

But Prof. Sam proposed that reasonable cost will be achieved by checking and knowing the market price. The reasonable profit will be achieved by knowing the profit that is built in BOQ.

The proposal by Prof. Sam could be sensible as FIDIC 99 clause 14.1 (d) stipulates that the contractor is required to provide the price breakdown of his tender within 28 days

[175] Ibid
[176] Ibid
[177] Glover, Jeremy, Simon Hughes *"Understanding the new FIDIC red book: a clause-by-clause commentary*", 1st edn, Sweet & Maxwell, 2006)
[178] Ibid
[179] Clause 1.2, MDB

after the commencement date[180]. This can be used by the engineer as guidance only[181] to know the price breakdown of the preliminary items including the profit which is built up in the BOQ.

Clause 12.3 (a) of FIDIC 99 can be applied to evaluate variations for varied works by establishing a new rate for each item, but can that established rate really be considered as appropriate for that particular item[182]. Hence, the survey asked the stakeholders the question whether they think that the 4 criteria of clause 12.3 can be easily satisfied by the contractor?

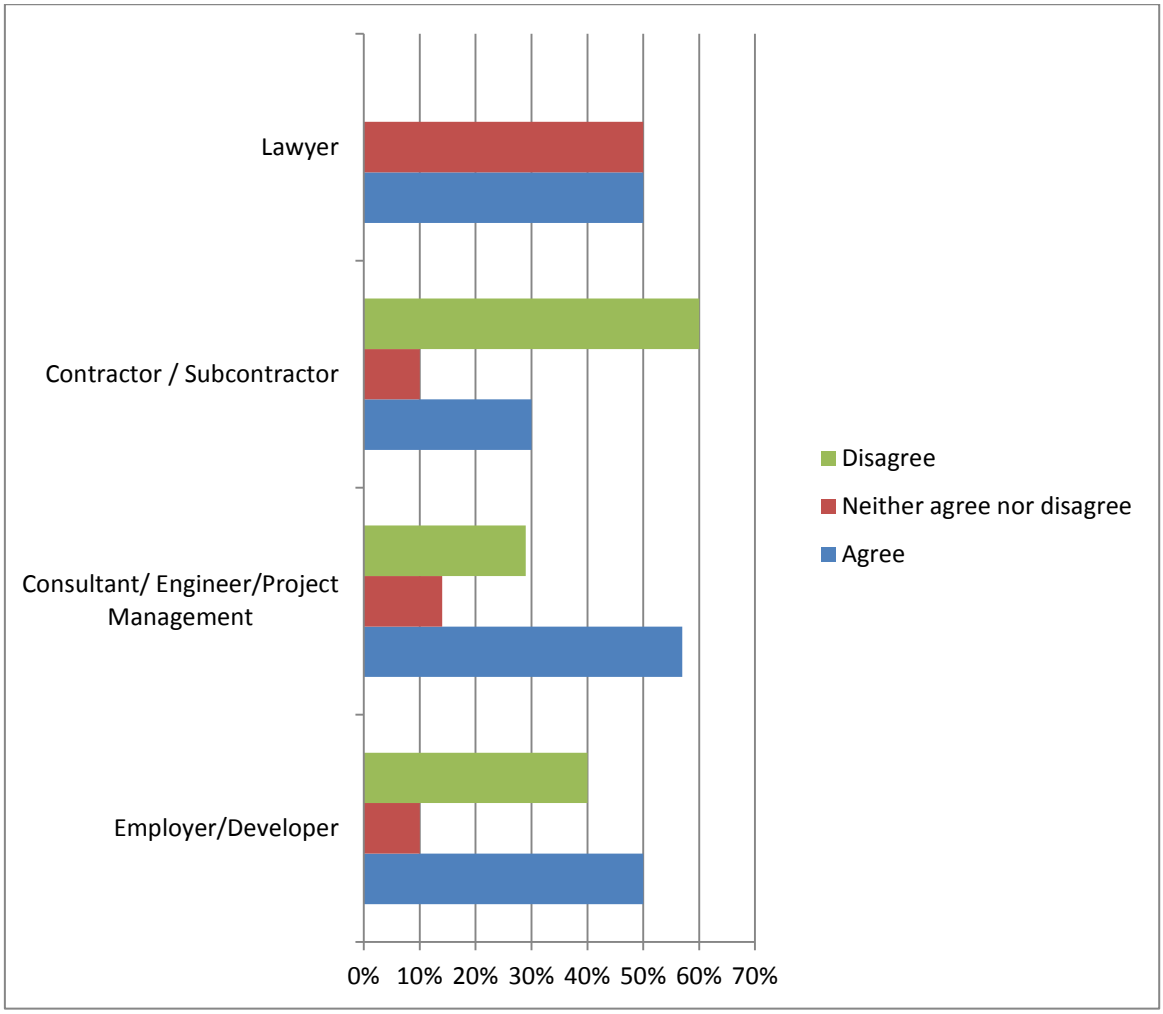

Figure 17: Whether The 4 Conditions In FIDIC 12.3 "Evaluation" Can Be Satisfied Easily.

Figure 16 outlines the idea that the engineers (57%) and the employers (50%) consider that the conditions can easily be satisfied and these conditions are in favor of the

[180] *FIDIC Red Book* (5th edn, 1999), clause 14.1(d)
[181] *The FIDIC Contracts Guide with detailed guidance using the first editions of FIDIC'S* (1st edn, 2000)
[182] Glover, Jeremy, Simon Hughes "*Understanding the new FIDIC red book: a clause-by-clause commentary*", 1st edn, Sweet & Maxwell, 2006)

contractor. In contrast, the party who disagreed with this question was the contractor with a percentage of (60%). The lawyers have shown neutral positions. The matter can be exemplified and demonstrated by using calculation method. Therefore, for argument, let's assume the following:

BOQ in the contract shows the following:

Item Description	**Quantity (meter=m)**	**Unit Price UAE Dirhams (AED)**	**Total Price UAE Dirhams (AED)**
Pipeline	1000 m	AED 500	AED 500,000

Let's assume the actual quantity is found to be (800 m) instead of (1000 m), therefore, the difference is 200 m which is a simple change in quantity.
Now the question is how clause 12.3 (a) of FIDIC 99 would evaluate such changes in the quantity, and compare this evaluation with the one under FIDIC 87:
Calculation under clause 12.3 (a) of the FIDIC 99:
A test of all of the 4 conditions must be satisfied as follows:

- First condition - clause 12.3(a) (i):
  Change in the quantity (200 m) / quantity stated in the BOQ (1000 m) = 20% which is more than 5 %. Consequently, first condition is satisfied.

- Second condition - clause 12.3(a) (ii):
  (200) x (500) = 100,000
  Let's assume for argument that the Contract Price is AED 90,000,000
  (0.01%) x (90, 000,000) = AED 9000
  And, 100,000 is greater than AED 9000 which is resulted from 0.01%,
  Consequently, second condition is, also, satisfied.

- Third condition - clause 12.3(a) (iii):
  The unit price of the item in the BOQ is 500 which comprises of the actual cost plus the overheads and profit. This unit price is broken down as follows:
  Actual cost is 400 AED/m plus the overheads costs and profit which are 100 (profit construes percentage of 25% from the unit price). But the contractor may argue that the actual cost is increased from AED 400 to AED 420. The

claim conscious contractor argument is that the project is located in dessert and the same truck which carries the 1000 m is used to carry the reduced quantity of (800 m).

Therefore, the new cost per meter is now increased to 420 m, then

400/420 = 5% which is greater than 1%

Consequently, third condition is passed

- Fourth Condition - clause 12.3(a) (iv):

  Usually, this condition in construction contract is passed, due to long duration of the construction projects, the unite rate of the item is not fixed in the contract.

As an overall result, all the four conditions are satisfied. To develop a new rate, two arguments may arise:

1) The new rate can be evaluated as follows: 420/400 x 500 = 525
2) Another argument can be raised is to evaluate the new rate as follows: 420 + 25% = AED 525

Then, the total price for the pipes is 800 m x 525 (AED/m) = 420,000 AED

As a summary of the above, under FIDIC 99, it is evident that a small quantity can satisfy all the four conditions and qualify the contractor for a new rate. Condition a (iii) allows the smart contractor to argue that his actual cost of execution of the work is increased. Furthermore, under the fourth condition the contractor can select which approach of evaluation procedure enables him to develop the best rate and claim more money than the other one. On the other hand, the employer/ the engineer will provide their counter claim to reduce/ refuse the contractors' claims which later can lead to dispute. Whereas, the variation evaluation under FIDIC 87 would be straight forward and very simple with no dispute or argument as follows:

Actual quantity (800 m) x the unit price stated in the BOQ (1000) = AED 400,000

Furthermore, the evaluation for the same quantity shows that the contractor would be entitled to the amount of AED 4200,000 under FIDIC 99 which is higher than the amount (AED 420,000) which calculated under the FIDIC 87. It can be concluded that the employers may not be happy with the evaluation of FIDIC 99, while the contractor would like it. As shown in figure 17.

Mr. Vincent confirmed that the thresholds of clause 12.3 (a) are very low and can be satisfied very easily by the contractor. He also stated that the contractor cannot argue under clause 12.3 (a) (i), because the change in quantity is a matter of fact which can be measured. Equivalently, clause 12.3 (a) (ii) the criteria cannot be argued. Only clause 12.3 (a) (iii) can be argued by the contractor. He added that clause 12.3 (a) (iii) should also, be amended to provide that the contractor shall submit the particular supporting documents/ evidence in order to attempt to minimize the area of the debate.

Interestingly, this fact is recognized by MDB harmonized edition[183], therefore these thresholds, which trigger developing new rate other than the ones set out in the contract[184], are changed to a higher percentage. The threshold value of the clause 12.3 (a) (i) is increased significantly from 10% to 25%. Additionally, clause 12.3 (a) (ii) increased dramatically the threshold value from 0.01% to 25%.

6.2 Can The Contractor Benefit From His Wrong Pricing?

It is not uncommon that the contractor makes mistakes in pricing his tender. If such an error is not discovered before awarding the contract, this rate will be, at the end, set out in the contract. The wrong price of an item which is set out in the contract can be more or less than the actual price. How does FIDIC 99 deal with this issue in case of variation?

Let's assume that the contractor priced the unit rate of a pipe incorrctly, whereby he inserted the price in the BOQ as AED 500, however, the actual cost on him was AED 600 instead of AED 500 but he quoted wrongly. As demonstrated earlier in the numerical example, deriving from clause 12.3 (a) (iii) the contractor can argue that the new actual cost on him now is 630 AED instead of 600 AED
Consequently, the evaluation will be as follows:
(630/ 600) x 500 = 525 AED
The new total price for the pipes is now = 800 m x 525 (AED/m) = 420,000

[183] Multilateral Development Bank Harmonized Edition June 2010, Condition Of Contract For Construction For Building And Engineering Works Designed By The Employer
[184] Glover, Jeremy, Simon Hughes "*Understanding the new FIDIC red book: a clause-by-clause commentary*", 1st edn, Sweet & Maxwell, 2006)

The calculation demonstrates that the procedure set out under clause 12.3(a) permits the contractor to take advantage of his wrong pricing. The contractor could succeed in correcting his wrong price from AED 500 to 525. Therefore, the evaluation procedure set out under clause 12.3(a) works in the favor of the contractor. In contrast, in FIDIC 87 the price would be maintained as is without change.

It has been established that the contractor should not be permitted to argue that he underestimated the works or failed to consider all of his expenses while pricing his tender[185]. In *Dudley Corporation v Parsons and Morrin*[186] where Parsons and Morrin suffered substantial losses, as the rate of excavating which was stated in the contract was too low and used to cover substantial increase in the quantity. Mr. Justice Pearce in the court of appeal held that the rate in the contract should be applied to the whole actual excavated quantity (223 cubic yards) and not only on the 75 cubic yards. He[187] explained that the contractor chose to take such risk and provided lower rate in his tender in order to win the project while other contractors provided higher rates taking into account such a risk.

Equivalently, this principle was adopted in *Henry Boot v Alstom*[188]. In that case it was found that the rate which was quoted by Henry Boot for the sheet piling had an unrealistic level of error and the rate was too high. But, when the variation was issued to include more quantity of piling sheet, the employer disputed such high rate, and argued that this high rate would not be used and new fair rate for the additional sheet piling should be used. However, the court's decision was in favor of the contractor who

[185] I N Duncan Wallace QC, in *Hudson's Building and Engineering Contracts*, "*Variation valuation: no correction of pricing errors"*, (2001) The International Construction Law Review
[186] *Dudley Corporation v Parsons and Morrin Ltd (1959)* contract RIBA 1939 was used for the construction of a school. The quantity of excavation of rock was 75 cubic yards and priced wrongly at lump sum sterling pounds 75 for two shillings per cubic meter. But the actual quantity substantially increased to 2230 cubic yards which showed substantial increase to the quantity mentioned in the BOQ, therefore this construed gross underestimation. The Architect measured the first 750 cubic yard at the contract rate and the balance with different rate of sterling pound 2 per cubic yard which was not accepted by Dudley.
[187] Mr. Justice Pearce stated *"In my view, the actual financial result should not affect one's view of the construction of the words. Naturally on sympathises with the contractor in the circumstances but on must assume that he chose to take the risk of greatly underpricing an item which might not arise, whereby he lowered the tender by £1425. He may well have thought it worthwhile to take that risk in order to increase his chances of securing the contract"*
[188] *Henry Boot Construction Ltd v. Alstom Combined Cycles Ltd* [1999] ABC.L.R. 01/22

enjoyed "windfall gain" as the work was of similar character and conditions to the original work which was stated clearly in the ICE 6th[189].

Even if the price is nil, such rate will be applicable as what happened in *Aldi Stores v Galliford*[190]. In that case the Contractor absorbed the rates for the disposal of clean and contaminated material which costs sterling pound 8.6 and 44.60 respectively from the total price under JCT contract. The contractor's agreement to accept the BOQ rate for that item as nil or equal zero was based on the fact that the contaminated material could be buried at the site. However, during the execution, it was found that the whole site was contaminated which required the removal of the disposal material to a licensed tip. It was held that the contracted nil rates should be used for such variation, as there was no change in the character of the work.

Therefore, BOQ rates should be applicable whether the rate is too high or too low or even equals zero. That is something irrelevant, as the parties contractually agreed to use the contracted rates in valuation of the variations. But clause 12.3 (a) of the FIDIC 99 works against such principles, as it allows the contractor to correct his wrong pricing and enables him to select which calculation procedure provides him with optimum price. Undoubtedly, this process can be considered as unfair evaluation.

6.3 Can The Employer Restore The Over-Recovery Of Overheads In His Favor

The survey sought the stakeholders' perceptions regarding whether they agree with the sentence: FIDIC 99 does not provide provision for restoration of over-recovery of overheads by the employer:

[189] The ICE 6th includes in brief the following rules for the valuation of variations:"*1)work of a similar character and executed under similar conditions to work priced in the Bill of Quantities is to be valued at the applicable rates and prices; 2)work not of a similar character or not executed under similar conditions is to be valued using the rates and prices in the Bill of Quantities as the basis for valuation so far as may be reasonable; 3) otherwise, a fair valuation shall be made."*

[190] *Aldi Stores v Galliford* [2000] 11 BLISS 7

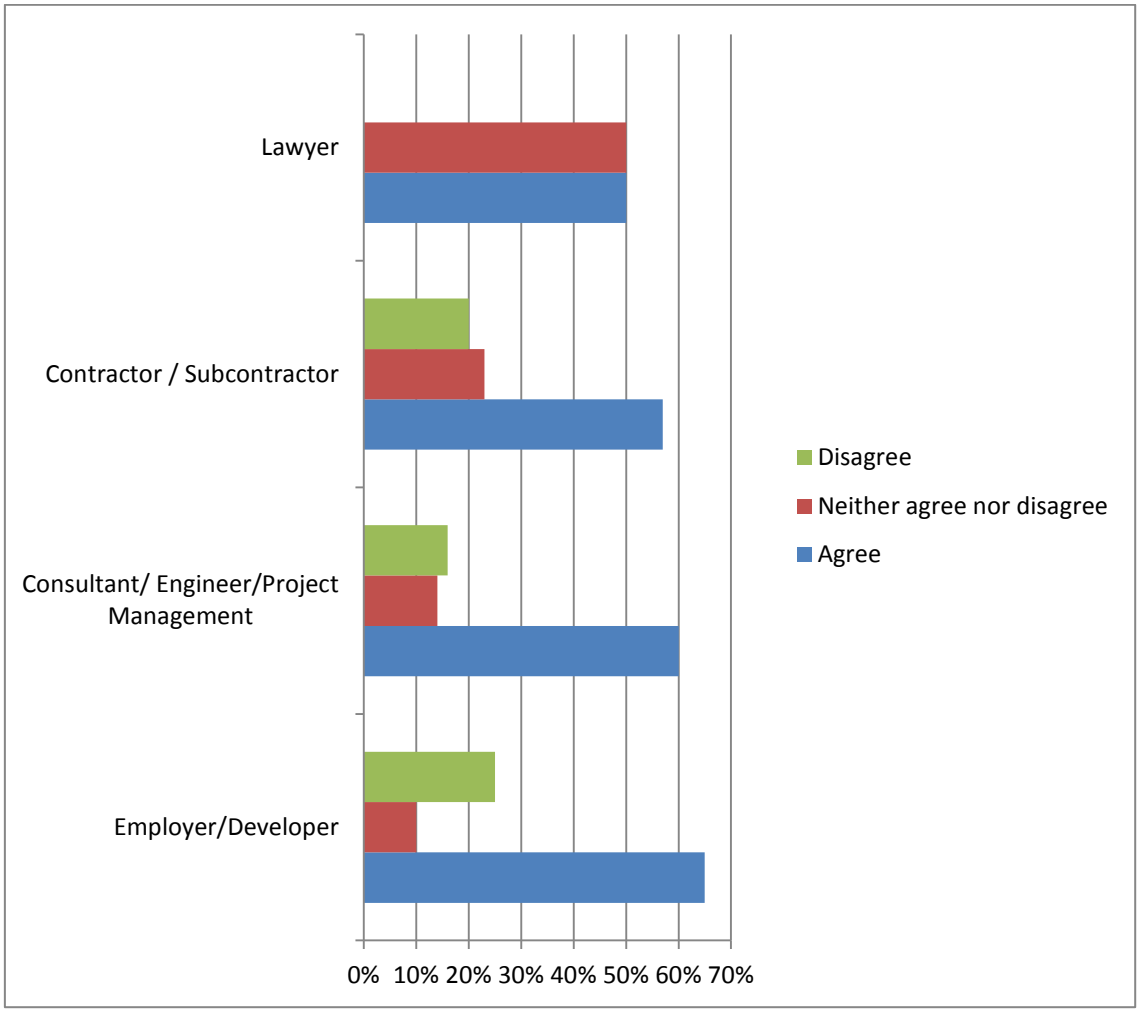

Figure 18: Whether The Employer Can Deduct The Over-Recovery Of Overheads Under FIDIC 99's Variation Provisions

Figure 18 shows that except for the lawyers who have neutral positions on this issue, all other stakeholders agreed with this sentence. As 65% of the employers agreed that they would not be able to deduct the over recover of the overheads; also, 60% of the engineers and 57% of the contractors have same perceptions. On the other hand, 25%, 16%, 20% of the employers, engineers, and contractors respectively disagree with this question. The answered to this question needs analysis as follows:

FIDIC 87 clause 52.3 *"Variations Exceeding 15%"* [191] handles specifically the adjustment of the overheads issue, as this provision states that *"having regard to the Contractor's site and general overhead costs"*. Therefore, this provision provides opportunity for the employer to deduct the over-recovery of overheads where the new variation amount is more than the effective contract price by 15%. For example, if the

[191] Clause 52.3, FIDIC 87

contractor put in his price a lump sum for overheads, and the contract price increased by 20%, the contractor will only be allowed for an increase in his overheads of 5% being the excess over 15% rather than the full 20%. In addition, this provision provided the opportunity to the contractor to recover the under-recovery of overheads where the net variations amount is less than the effective contract price by 15%. Therefore, this provision is merely for overhead adjustments and not for re-rating, as re-rating relies on the opinion of the engineer. Whereas, FIDIC 99 removed this provision and left no remedy for the employer to deduct the over-recovery of overheads under any clause of the FIDIC 99.

FIDIC 99 allows the contractor to recover the under-recovery of overheads under new separate clause 12.4 "*Omission*". This provision states that the contractor is required to give notice to the engineer to compensate him for the omitted work. Such compensation includes the contractor's loss of profits, overheads and any other costs incurred by him[192]. There will be more remedies for the contractor for the remaining work after omitting part of works, because, some items will be affected; the quantity will be varied, and/ or other items will be deleted. Therefore, the contractor, certainly, will be eligible for new rates, if the changes in quantities are exceeded by the thresholds set out in clause 12.3 *"Evaluation"*. By this process, the contractor will be compensated by clause 12.4 for recovery of under-recovery of overheads and clause 12.3(a) for re-rating. The employer will negotiate with the contractor in order to demand from him an earlier completion. Moreover, the contractor wants to avoid operating the liquidated damages clause.

Mr. Peter and Mr. Vincent were asked why clause 52.3 *"Variation Exceeding The 15%"* is not found in FIDIC 99.

They answered that FIDIC 87, clause 52.3 did not exist in FIDIC 99, however, there were two main misconceptions in provision 52.3 that led to FIDIQ taking out this provision: first, if the amount of the variations is more than 15% of the contract price, you cannot issue a variation for more than 15% of the contract price, which is a wrong interpretation, and of course you can. Second, if the total amount of the variation value is increased by more than 15%, then the contractor will be entitled to the new rate, which is also an incorrect interpretation.

[192] Glover, Jeremy, Simon Hughes "*Understanding the new FIDIC red book: a clause-by-clause commentary*", 1st edn, Sweet & Maxwell, 2006)

It is must highlighted that the 15% percentage of FIDIC 87 is increased to reach 30% in the Emirates of Dubai. Moreover, this percentage is not stated expressly in the contract, but the contractor should be aware of it, as it is implied by the law[193]. Therefore, the contractor who is unaware of such a high percentage will find himself under a risk which he failed to consider in his tender price.

Prof. Sam stated that the threshold percentage of 15% of the net effective contract price under clause 52.3 of FIDIC 87 was only for overhead adjustments and had nothing to do with quantities being more or less by 15%. Therefore, it is different from the threshold percentage of 10% change in quantity per item which is stated in FIDIC 99, and cannot be compared to it.

It may be concluded that though there were problems that resulted from the application of 52.3 under FIDIC 87, this clause could be redrafted in a better way to clarify these issues or the issue can be clarified in the FIDIC guidelines, or by having proper training. Perhaps, it is surprising to delete an entirely such provision without having an equivalent one under FIDIC 99 as a matter of equivalency and fairness for both parties. Prof. Sam stated that the absence of such a provision from FIDIC 99 is a major deficiency in FIDIC 99. How is it that the employer cannot recover these costs and it is only the contractor who can be compensated?

6.4 Notice To Claim Varied Rate/ Prices Or Extra Payment

FIDIC 87 clause 52.2 *"Power of Engineer to Fix Rates"* [194] provides that either party must issue notice to the other one to show his intention to claim varied rates or prices/ extra payment. But, FIDIC 99 clause 12.3 abolished such notice provision.

Mr. Peter commented that the provision is not expressed in FIDIC 99 version as it is transferred in principle to clause 20 *"Claims, Disputes and Arbitration"* [195].

The primary function of this notice is to entitle the contractor to claim a varied rate/price or extra payment or to entitle the engineer to vary a rate/ price as a result of an instructed variation. For example, if the engineer instructed additional work which is outside the contract, then, in the first place, the contractor can refuse to carry out such

[193] Law No. 6 of 1997 (as amended) "the Law" in the Emirate of Dubai, Article 48.
[194] Clause 52.2 *"Power of Engineer to Fix Rates"*
[195] Clause 20, FIDIC 99

variations as he does not have an obligation to carry out any variation, that the Engineer does not have the authority to instruct. If the contractor offers to carry them out at revised rates, then it is the employer's option to either get them done through this contractor or another contractor. This is why, 14 days' notice is required (pursuant to clause52.2 (a), before commencing the varied work, if the contractor requires varied rates, in order to let the employer either continue with them at new rates, or retract the variation instruction if he does not want to pay at new rates[196]. Clause 52.2 was interrelated[197] with clause 53.1 *(Procedure for Claims- Notice of Claims*) [198] of the FIDIC 87. Though the notice was highly arguable to decide whether it is necessary or not, the arbitrator was in strict compliance with this notice[199].

FIDIC 99 clause 20.1 states that *"if the contractor considers himself to be entitled to any extension of time for completion and/ or any additional payment, under any clause of these Conditions, the contractor shall give notice to the engineer, describing the event or circumstance giving rise to the claim"*. Clinical examination of this provision revealed that the entitlements for the contractor shall be interrelated and correlated with *"under any clause of these Conditions"* which means that any clause of the contract which provides entitlements (EOT/ payment) for the contractor shall be read in conjunction with this clause. For example, clause 7.4 *"Testing* "of the FIDIC 99 stated that if the contractor suffers delay/ incurs cost as a result of complying with the *"Testing* "clause, the contractor must send notice to the engineer, this notice entitles the contractor to claim EOT and any additional payments (cost plus reasonable profit) [200]. Such entitlement shall be subjected to the contractor's compliance with the procedural requirements stated under clause 20.1 of FIDIC 99. Therefore, it should be essential to highlighted that the notice to claim (which is similar to what is provided under "*Testing"* clause) is distinguished from the claim procedure requirement (which is stated under clause 20.1). Therefore, clause[201] 20.1 of FIDIC 99 fails to provide an entitlement for the contractor to claim, as it stated only the procedure to claim other entitlements, these other entitlements already exist under other clauses. The requirement of notice is necessary to make the sense of the contract.

[196] Clause 52.2, FIDIC 87
[197] Reg Thomas, *"Construction Contracts Claim"*, (2nd edn, Palgrave, New York 2001)
[198] Clause 53.1 FIDIC 87
[199] Ibid
[200]Clause 7.4, FIDIC 99,
[201] Clause 20.1 FIDIC 99

Prof. Sam is in favor of having "notice to claim" and he commented that it is to claim prolongation costs when EOT is given for a delay caused by a variation. The lack of it in FIDIC 99 is a big shortcoming, as there is no other provision in FIDIC 99 to claim prolongation costs due to a delay caused by a variation, thus leaving the very undesirable alternative of claiming damages (for breach of contract by employer), every time a variation is instructed.

It is submitted that the notice is something crucial and must be taken into account in payment claims. For example, UAE law, Article 886(1) of CTC[202] concludes that the contractor must notify the employer with the expected additional price which will be incurred by the employer for the additional work. If the contractor fails to serve such notifications, then the contractor would lose his additional entitlements. The objective of this notification is to make the employer aware (awareness notice), and then he can make a decision, whether to continue with the additional work or withdrawal from the contract.

Under common law, one important element of the key changes which were introduced by the UK Construction Act 2009[203] is the payment notice regime which was found in the Construction Act 1996[204]. The notice regime emphasizes that payment notice must be issued by the employer and the contractor. The employer is required to issue a payment notice, and if he fails, the contractor is required to issue default notice or his application for payment will be considered as a payment notice. Once such a payment notice is received by the employer, the employer must pay it or issue a pay less notice if he wishes to argue the value of the payment notice.

Therefore, it would be preferable to maintain the notice provision in variation provisions in FIDIC 99 but with amendments rather than deleting it entirely, as such an omission would lead to serious problems which did not exist under FIDIC 87.

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[202] UAE Civil Code, Law # 5 of 1985, Article 886 "1. If a contract is made under an itemised list on the basis of unit prices and it appears during the course of the work that it is necessary for the execution of the plan agreed substantially to exceed the quantities on the itemised list, the contractor must immediately notify the employer thereof, setting out the increased price expected, and if he does not do so he shall lose his right to recover the excess cost over and above the value of the itemised list.
2. If the excess required to be performed in carrying out the plan is substantial, the employer may withdraw from the contract and suspend the execution, but he must do so without delay and must pay the contractor the value of the work he has carried out, assessed in accordance with the conditions of the contract."

[203] UK Construction Act 2009

[204] UK Construction Act 1996

Chapter 7 Conclusions And Recommendations

Variation claims are phenomena in the construction industry and cannot be avoided since the construction works are impeccable. Variation can be concluded as "any change in form, character, quality, kind, level, alignment, quality, line position, or dimension of existing work or any additional work that is necessary or appropriate to complete the work". Variation provisions empower the employer to overcome changed requirements or unexpected events. On the other side, the contractor will be able to recover compensation/ additional time as a result of such variations. The variations permit any change to be incorporated in the contract with its consequential effects on the contract price and time for completion.

Adequate and well drafted variation clauses participate effectively to encourage the contractor to furnish tender prices properly quoted. Equally, the employer will be in comfortable positions, as he is less likely to receive potential claims. But if the contract has poor quality variation provisions, it is expected that highly debatable claims and vigorous disputes will arise from the application of these provisions. In competitive environment claim-oriented contractor probably relies on the wording of variation provisions to obtain reasonable profit. Also, unscrupulous employer may try to benefit from the gaps/ pitfalls which exist in these provisions to gain more service from the contractor. Therefore, each party may try to increase his profitability and reduce his losses by attempting to circumvent these provisions and find a loophole.

Undoubtedly, variation provisions of the FIDIC 99 have incorporated very interesting ideas and dynamic features extended their dimensions/ domains, therefore, the got distinguished from their counterparts of the FIDIC 87. For instance, permitting the variations to be agreed with the contractor before instructing these variations, as the contractor can submit quotation or value engineering proposal. Also, FIDIC 99 provides a unified definition for the variations instead of applying two terms *"Variations"* and "*varied work*" as applied by FIDIC 87. FIDIC 99 has built up its evaluation procedure based on factual facts and introduced a formula with four conditions need to be satisfied to determine the eligibility for new rate, consequently, subjective term such as "*in the opinion of the engineer*" are precluded. In these aspects, the highest percentage of the contractors (50%) and the two experts; Mr. Vincent and Mr. Peter become fans of these provisions which provide more room for discussion and mutual agreement between the

employer and the contractor. Furthermore, FIDIC 99 allows ground for the contractor to object based on non-availability of goods, such step are welcomed significantly by the contractor (77%) as illustrated from the survey.

However, the wordings and the applications of variation provisions of FIDIC 99 unearth very serious problematic issues which were not found under FIDIC 87. For instance, there are inconsistencies and ambiguities in the terminologies of the variation provisions of FIDIC 99. For instance, using the terms "*alternations/ modifications*" instead of "*variations*" under clause 13.1. The subjective term "*as soon as practicable*" considered as vague phrase by most of the construction stakeholders. There is obvious incompatibility between two variation provisions under FIDIC 99, they are; clause 13.1 and clause 11.2 whereby the former prevents instructing variations after TOC while the latter allows variations for the rectification period. Clause 13.1 should have excluded clause 11.2 from this prevention. Omission provision in FIDIC 99 may allow the employer to execute the omitted work by himself or by another contractor. Such provisions are welcomed by the employers, whereas the contractors express their concerns from such wordings. Whereas the equivalent provision in FIDIC 87 prevents clearly the employer from such act. The wording of the acceleration provision may enable the contractor to claim variations in each time he changes the sequence/ timing of his program. Most of the stakeholders agrees that the provision 13.1 (f) is drafted with less precise manner compared to its equivalent clause under FIDIC 87. Additionally, FIDIC 99 still lacks important definitions, such as, acceleration which is the one of the most common problem in the construction industry as it is revealed by the survey. Furthermore, the contractors show their potential eagerness to have definitions for acceleration and to define the circumstances which entitle them for the acceleration costs.

The distinguished features of the variation provisions of the FIDIC 99 have poor wording, for instance, variation procedure clause fails to cater expressly the risk of the costs associated with the variations and not only the cost of the variations itself. If the contractor is encountered with a stubborn engineer, this engineer may reject the contractor's valid objection to execute variations as a result of non-availability of goods, as the engineer still has the right to object. Though most of contractors (77%) like strongly this ground for objection, there are a high percentage of the engineers (43%)

and lawyers (50%) who disagree with this objection. This dispute could reach the DAB and subsequently arbitration/ litigations.

If there is simple change in quantity, the evaluation procedure of the variations will qualify the contractor to claim new rate, as the threshold values are very low. Furthermore, the contractor may be able to benefit of his wrong pricing as a result of such procedure. Furthermore, the employer does not have remedy to deduct the over-recovery of overheads. All these issues are evidenced with the numerical example, and confirmed by most stakeholders as it is revealed by the survey. Therefore, the employers (67%) prefer to use variation provisions of the old versions (1987), whereas, the contractors (54%) opt to select variation provisions of the FIDIC 99. Furthermore, it is perhaps strange that the rates which are specified in the contract can be changed without express variation. Such procedure contravenes with UAE law and creates potential conflicts between the contracting parties.

Since publishing the first edition of FIDIC in 1957, its provisions have been tested before courts and amended in several occasions over years to reach the mature 4th editions, therefore, this version has pre-established provisions. Consequently, there is no obvious reason why the draft committee of FIDIC 99 made some alterations in the wording of some provisions, for instance, omission provision. It is perhaps surprising that variation clauses of FIDIC 99 introduce such new wordings/ changes to their counterparts under FIDIC 87.

Though simplification in the English language which is attempted by FIDIC 99 to assist people who have another mother language to understand the contract may be appreciated considerations, this may lead to complications in practice in the construction industry. If the variation provisions of the FIDIC 99 are taken literally without any amendments, this may lead to dilemma in the construction industry. Therefore, the quality of these provisions may be gone astray. Draftsmen of FIDIC 99 has provided imprecise and concise wording for the variation provisions, as some of these modifications are controversial, debatable and put them in a criticized position to what they mean exactly, therefore, such amendments are, undoubtedly, regrettable.

Notwithstanding with all these observations, it should be noted that FIDIC 99 is still in its first version. Therefore, this research presents a call for the FIDIC to take into

consideration the issues which are introduced under this research. It is expected that several alterations will be desirable to be made on this new version which is, regrettably, doubtable to serve its intention of having less dispute. Meanwhile, the contracting parties should be aware of these complications and have proper training to administer the contract smoothly and take the necessary precaution measures before crystallization of the disputes. Also, this research should be of much interest to judges, arbitrators, and lawyers.

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4. Appendix -The Survey Results - Summary Report