

VARIATION ORDER IN LUMP SUM CONTRACT

NOOR AMALINA BINTI MOHAYIDIN

A thesis submitted in fulfilment of the
requirements for the award of the degree of
Master of Science in Construction Contract Management

Faculty of Built Environment
Universiti Teknologi Malaysia

AUGUST 2014

*Specially dedicated to Mama and Papa
Thank You For Your Constant
Du'a*

ACKNOWLEDGEMENT

In the Name of Allah the Most Gracious, the Most Merciful

Alhamdulillah. Praise be to ALLAH the Most Gracious and the Most Merciful. Salawat and Salam upon our beloved Prophet Muhammad (PBUH), his family and his companions. I thank ALLAH for giving me this strength, courage, health, knowledge and time to complete this Master Project.

First of all, I would like to express my highest gratitude to my supervisor, Associate Professor Sr. Dr. Maizon Hashim for her tremendous guidance, inputs, advice, encouragement and patience in supervising me throughout this short semester especially in finishing this Master Project. I believe that, without her assistance, this report will never be completed as required.

My warmest thanks and appreciation also goes to all the lecturers in Msc Construction Contract Management, Faculty Built of Environment for the continuous advice, knowledge and help throughout my study in UTM, especially to Mr Jamaludin Yaakob, Assoc Prof Dr Rosli Abdul Rashid, and Assoc Prof Dr. Nur Emma Mustaffa.

To the most important people in my life, En. Mohayidin Yusoff and Pn. Norliza Sharif, siblings and family, your endless support, courage and constant prayers over the years are my strength.

Last but not least, thanks to all lecturers, classmates, friends, colleagues and whoever that has given me assistance and support in completing this Project Report.

ABSTRACT

In this complicated industry, variation orders are part and parcel in construction contract. It is likely impossible not to have changes in completing the project either to the plans or the construction process itself. Due to its complexity in nature, these changes are inevitable in any construction project. Most construction contracts commonly include variations clauses to enable the employer's design team to vary the design and specification, including in the Lump Sum type of contract. The main criticism of the traditional Lump Sum Contract has been that, it invites a confrontational approach over disputes arising out of contract variations. Furthermore, changes in Lump Sum Contract are difficult to quantify and the owner might reject the change order request. Thus, variation issues often give rise to argument, debate and litigation. Hence, the objective of this study is to identify the issues regarding variation order in Lump Sum Contract. The scope of the study is from the legal cases reported in Lexis Malaysia in relation to variations and Lump Sum Contract. The cases were analysed in order to achieve the objective of this project report. From the cases, few legal issues of 'variation orders in Lump Sum Contract' were found. The cases then be categorized under the issues discovered earlier in the literature review. From the analysis, it can be summarized that, the most common issue contended in court is on the validity of variation claims. The second is on the establishment of the very fact of a variation itself, while the third are, on the status of "cardinal" changes, and, "the contractual" and "common law position". Last but not least, the issues on the measurement of varied work and valuation of variation orders, have also been identified in one case each respectively. Therefore, by conducting this research, the judgment made by the court on issues pertaining to variation order can be used as a reference to establish a guideline for the people in the industry so that the same problem will not be repeated in future project in Lump Sum Contract. The issues highlighted and the judgment delivered can become a lesson learned rather than opt for bringing the matter to court.

ABSTRAK

Dalam industri yang rumit ini, perintah variasi adalah sebahagian dalam kontrak pembinaan. Ia mungkin mustahil untuk tidak mempunyai perubahan menyiapkan projek sama ada kepada pelan atau proses pembinaan itu sendiri. Oleh kerana ia rumit, perubahan ini tidak dapat dielakkan dalam apa-apa projek pembinaan. Kebanyakan kontrak pembinaan biasanya menyediakan klausa-klausa perubahan untuk membolehkan majikan dan oerunding perunding professional untuk merubah reka bentuk dan spesifikasi, termasuk kontrak jenis 'wang pukal'. Kritikan utama kontrak jenis 'wang pukal' ini, ia mengundang suatu pendekatan konfrontasi ke atas pertikaian yang timbul daripada variasi kontrak. Tambahan pula, perubahan di dalam kontrak 'wang pukal' adalah sukar untuk diukur dan kemungkinan majikan menolak permintaan perintah perubahan adalah tinggi. Oleh itu, isu-isu perubahan sering menimbulkan perdebatan, perbincangan dan tindakan undang-undang. Oleh itu, objektif kajian ini adalah untuk mengenal pasti isu-isu mengenai perintah variasi dalam kontrak jenis 'wang pukal'. Skop kajian ini adalah daripada kes-kes undang-undang yang dilaporkan di Lexis Malaysia berhubung dengan variasi dan kontrak jenis 'wang pukal'. Kes-kes telah dianalisis untuk mencapai objektif laporan projek ini. Dari kes tersebut, beberapa isu-isu undang-undang tentang variasi dalam kontrak jenis 'wang pukal' dijumpai. Kes-kes itu dikategorikan di bawah isu-isu yang ditemui lebih awal dalam kajian literatur. Daripada analisis ini, adalah dirumuskan bahawa, isu yang paling biasa diujulkan di mahkamah adalah mengenai 'kesahihan tuntutan variasi. Isu yang kedua adalah mengenai penubuhan fakta jelas daripada variasi sendiri, manakala isu ketiga adalah mengenai status "kardinal" perubahan, dan, kedudukan kontrak dan kedudukan undang-undang biasa. Akhir sekali, isu-isu mengenai pengukuran kerja pelbagai dan penilaian pelbagai tempahan, yang kedua-duanya telah dikenal pasti, satu kes masing-masing. Oleh itu, dengan menjalankan penyelidikan ini, pertimbangan yang dibuat oleh mahkamah mengenai isu-isu berkaitan dengan perintah variasi boleh dibuat sebagai rujukan untuk mewujudkan satu garis panduan untuk orang-orang dalam industri ini supaya masalah yang sama tidak berulang dalam projek masa depan dalam kontrak jenis 'wang pukal'. Isu-isu yang diketengahkan dan pertimbangan yang disampaikan diharap dapat menjadi satu pengajaran dan bukannya memilih untuk terus membawa perkara-perkara tersebut ke mahkamah.

TABLE OF CONTENTS

ACKNOWLEDGEMENT	vi
ABSTRACT	vii
ABSTRAK	viii
TABLE OF CONTENTS	ix
LIST OF TABLES	xii
LIST OF FIGURES	xiii
LIST OF ABBREVIATION	xiv
LIST OF CASES	xv
CHAPTER 1	1
1.1 Introduction	1
1.2 Problem Statement	3
1.3 Objective of the Study	5
1.4 The Significant of the Research	5
1.5 Research Methodology	6
1.6 Organisation of the Report	9
1.7 Conclusion	10
CHAPTER 2	11
2.1 Introduction	11
2.2 The Concept of Traditional Lump Sum	11
2.3 Definition	12
2.4 Features of Traditional Lump Sum Contract	14
2.5 Advantages and Disadvantages of Traditional Lump Sum Contract	16
2.6 Standard Form of Contract for Traditional Lump Sum Contract	18
2.7 Main Aspects of the Construction Contract in relating to Lump Sum Contract	19

2.8 Issues in Lump Sum Contract	24
2.9 Conclusion	25
CHAPTER 3	27
3.1 Introduction	27
3.2 Definition	27
3.3 Contractual Variations	30
3.4 The Nature and Types of Variation Order	32
3.4.1 Nature of Variation Order	32
3.4.2.1 Beneficial variation orders	32
3.4.2.2 Detrimental variation orders	33
3.5 Valuation of Varied Work	33
3.5.1 Valuation of Variation under PWD 203 (Rev 1/2010)	35
3.5.2 Valuation of Variation under PAM 2006 (Without Quantities)	36
3.6 Causes of Variation Orders	37
3.6.1 Client related changes	39
3.6.2 Consultant related changes	39
3.6.3 Contractor related changes	40
3.6.4 Other changes	40
3.7 Potential Effects of Variation Order	43
3.8 Main Issues in Variation Order	46
3.9 Conclusion	51
CHAPTER 4	53
4.1 Introduction	53
4.2 Analysis on the Case Law	54
4.3 Conclusion	88

CHAPTER 5	93
5.1 Introduction	93
5.2 Summary of Research Findings	93
5.3 Problem Encountered During Research	105
5.4 Future Research	106
5.5 Conclusion	106
REFERENCES	108

LIST OF TABLES

TABLE NO	TITLE OF TABLES	PAGES
Table 3.1	Rank of the Occurrence of the Causes of Variation Orders	41
Table 3.2	The Frequency of the Most Effects of the Variation Orders	45
Table 5.1	Tabulation for Issues on Variation Orders In Lump Sum Contract	94-100
Table 5.2	Tabulation of the Frequency for Issues on Variation Orders in Lump Sum Contract	101

LIST OF FIGURES

FIGURE NO	TITLE OF FIGURE	PAGES
Figure 1.1	Research Methodology	8

LIST OF ABBREVIATION

BoQ	Bill of Quantities
CIDB	Construction Industry Development Board
ICE	The Institution of Civil Engineers, UK
IEM	The Institution of Engineers, Malaysia
JCT	Joint Contract Tribunal
JKR	Jabatan Kerja Raya
PAM	Persatuan Arkitek Malaysia
PWD	Public Work Department
SO	Superintending Officer
VO	Variation Order

LIST OF CASES

NAME OF CASES	PAGES
<i>Stockport Metropolitan Borough Council v O'Reilly</i> [1978] 1 Lloyds Rep 59	2
<i>CM Indah (dahulunya dikenali sebagai Chai Mio Constructions Sdn Bhd) v UB Ushabina Sdn Bhd</i> [2006] MLJU 426	4, 58
<i>Forrest v Scottish County Investment Co Ltd</i> 1916 SC (HL) 28	21
<i>Bolton v Mahadeva</i> [1972] 2 All ER 1322	21
<i>Hoening v Isaacs</i> [1952] 2 All ER 176	21, 22
<i>Thorn v London Corporation</i> (1876) 1 App Cas 120	23
<i>Williams v Fitzmaurice</i> (1858) 157 ER 709	49
<i>Sri Bumi Construction Sdn Bhd v Maju Holding Sdn Bhd</i> [2010] MLJU 1476	53
<i>Wong Chong Chow V Pan-Malaysian Cement Works Bhd</i>	55
<i>Teknik Segala Sdn Bhd v Salcon Engineering Bhd</i> [2012] 9 MLJ 529	60

<i>Kabelcom Sdn Bhd v Pakadiri Modal Sdn Bhd and Anor</i> [2010] MLJU 536	63
<i>Besteel Berhad (Formerly known as Besteel Engineering Works Sdn Bhd) v Pembangunan Ladang Hassan Sdn Bhd</i> [2010] MLJU 953	65
<i>ABB Transmission and Distributions Sdn Bhd v Sri Antan Sdn Bhd & Anor</i> [2009] 7 MLJ 644	67
<i>Mc Alpine Humberoak Ltd v McDermott International Inc-28</i> ConLR 76	74
<i>Shanks & McEwan (Contractors) Ltd V. Strathclyde Regional Council</i> [1994] SC 374	74
<i>Kian Hong Holdings Pte Ltd v Ohbayashi-Gumi Ltd</i> [1984] 1 MLJ 16	79
<i>West 3 Mechanical Contractors Ltd v Mizen Design Build Ltd</i> [2013] EWHC 4004 (TCC)	84

CHAPTER 1

INTRODUCTION

1.1 Introduction

Variation orders in construction contract are part and parcel in this complicated industry. It is likely impossible not to have changes in completing the project either to the plans or the construction process itself (Nachatar *et al.*, 2010). Due to its complicated in nature, these changes are inevitable in any construction project (Mohammad *et al.*, 2010).

Variation orders somehow can be the savior to the project or otherwise. On the employer's side, variation order may be one of the ways to cut cost. However, in this competitive environment of construction industry, the contractors sometimes rely on the employer's variations to make a reasonable return for their contracts (Ren, 2001).

The standard forms of contract normally provide the variation clauses which facilitate the employer's design team to change the design and specification. Under the clause, the employer or his representative is able to issue an instruction to the contractor to vary the works which are described in the contract, also provide as a mechanism for evaluating the financial effect of the variation and there is normally provision for adjusting the completion (Nachatar *et al.*, 2010).

Even though it is practically impossible to achieve zero variations in a project, minor variations can often be accommodated without distracting the work programme provided that; a very good coordination between the team members has been applied. Some variations can even speed up the construction process. Hence, more often most cases of variations may result in increase of costs, failure to complete the project in time, increase in contractor's claim and rise in the number of disputes among the parties involved (Murdoch & Will, 1996).

The main reason why variations have been requested by the client is due to inadequate project objectives for the designer to develop complete design (Nachatar *et al.*, 2010). Depending on the nature of the variation, it may turn out to be higher or lower or it can be in the form of addition or omission to the work. Thus, where a contractor has secured a project on prices and terms which are profitable, he will have a strong interest to argue that any additional work should be construed as a variation and valued according to the prices and rates contained in the contract (Stockport Metropolitan Borough Council v O'Reilly , 1978).

There are three ways in which a variation might occur. Firstly, clients may change their minds about what they asked for before the work is complete. Secondly, designers may not have finished all of the design and specification work before the contract was consent to. Thirdly, changes in legislation and other external factors may force changes upon the project. Although these three origins are very different, construction contracts tend to ignore these differences and deal with all variations in the same way (Murdoch & Will, 2000).

In addition, most of the normally used standard forms of contract comprise a broad interpretation of variations clause. The normal variations clause will provide power for the employer to call for varied or additional work including additions, omissions, substitutions and alterations, changes in the quality, form, character, kind, position, dimension, level or line. Some of the contracts go even further (Knowles, 2008).

The standard form used for a project is basically based on the nature of the project and most likely, it is approved by the owner. In traditional approach, the employer accepts that design work will generally be separated from construction, and consultants are appointed for design and cost control, and the contractor is responsible for carrying out the works. This responsibility extends to all workmanship and materials, and includes all work by subcontractors and suppliers (Davis *et al.*, 2004). In Malaysia, for Traditional Lump Sum contract, the standard form used is PWD 203 (Rev 2010) for public works.

According to Duminda (2010), it is always the perception of the people in the industry that the variation orders often happen and in most cases, they are not properly administered. It is further added by the author that, for most of the contract, which include the Bill of Quantities and Specification form part of the contract, the changes might be easier to be administered. However, for Lump Sum Contract, it might face some issues regarding variations due to the contract which is based on drawings and specifications only (Duminda, 2010). It means contractor will totally depends on the designers' drawings. Furthermore, Elliot (1981) stated that, the Lump Sum Contract is very simple by principle but not in practice because there are many factors that can make the contract complicated, as cited in (Yusuf, 2012) .

1.2 Problem Statement

The variations works has long been recognized as one of the commonest sources of disputes in the construction industry. The complexity of the construction industry due to different stakeholders' involvement makes it differ from other industry. This complexity gives rise mostly to unwanted situation like variations with their attached effects, and the more variation orders on a project, the greater the likelihood that they become time consuming and costly in construction projects (Mohamed, 2001).

According to Knowles (2008), it has been argued that if the work is necessary to complete what is described in the Lump Sum type of contract, then the contractor will be obliged to undertake the work even though it may not have been referred to the specifications or shown on the drawings. For example, door frame may not have been specifically referred to in the contract documents (drawings) but where a contractor enters into a lump sum contract for the construction of say a house it would be implied that the price includes for door furniture (Knowles, 2008). Moreover, this kind of contract needs the contractors to prepare their own measurement, as for them, interpreting the specification can be a difficult job and they might be interpret the drawings differently, therefore it does not easily allow for a fair comparison of the tender sum received by the employer (Ashworth, 2012).

Furthermore, unlike contract with Bill of Quantities and Specifications, Lump Sum Contract is based on drawings and specifications. The variations clause which appears in most standard forms of contract is tremendously important from the employer's point of view where the contract grants the contractor to deliver the works described in the contract for a lump sum. According to Walker & Hampson (2003), the main criticism of the traditional Lump Sum Contract has been that, it invites a confrontational approach over disputes arising out of contract variations. In addition, Rodriguez (2011) purported that, changes in Lump Sum Contract are difficult to quantify and the owner might reject the change order request. Singh & Kandan (2005) also agreed that, confusion also rise in this type of contract in terms of valuation of the works.

In the absence of a variation clause the contractor's obligation will be restricted to completing the work described in the contract and there will be no obligation to undertake any variations or additional work (Nachatar *et al.*, 2010). For example, as cited in the case of CM Indah against UB Ushabina Sdn Bhd (2006), the issue is whether the extra payment can be claimed by the plaintiff from the defendant in the lump sum contract entered into by both parties for variation works in the event

of no provisions of variation works stated in the contract, the Judge has decided that, in such absence, the claimant must provide proofs and evidence for such claims.

Furthermore, according to Sim (2007) various forms of construction contract defined the variation differently and different standard forms of contract have different wordings for it. He further added that, the variation clauses are usually drafted in very wide terms. Although the descriptions are clear but it is difficult to determine the point whether it is 'variation' or 'new work', and it is not clear from the ambit of these clauses as to how extensive a variation may be (Singh & Kandan, 2005). Therefore, from the issues stated above, this study is to identify what are the circumstances that brings the parties to litigation regarding Variation Orders in Lump Sum Contract. By identifying the issues from the cases, the judgment made by the court can be made as a reference to establish a guideline for the people in the industry so that the same problem will not be repeated in future project in Lump Sum Contract. The issues highlighted and the judgment delivered can be used as a lesson learned rather than opt for bringing the matter to court.

1.3 Objective of the Study

The objective of this study is to identify the issues regarding variation order in lump sum contract.

1.4 The Significant of the Research

Basically, this study is to identify what are the issues that bring the parties to litigation procedure in regards to variations under the Lump Sum Contract. The findings of the research will be presented through the selected cases which will illustrate the issues between the contracting parties in litigation and the judgment made by the judge of the court. By knowing the issues and the situations, this will be

the lesson learnt to the key players in the industries whenever they want to adopt this type of construction contract in their project.

1.5 Research Methodology

This study is carried out in two parts. The first part is focused on the review of literature on the Traditional Lump Sum Contract and Variation Orders.

It is followed by an extensive synthesis of case laws. The law reports and cases identified for this research were mainly gathered via Lexis Nexis. Analysis will be made on the issues on variation arose in the Lump Sum Contract as well as judgment made by the courts.

1.5.1 Stage 1: Initial Study and Finding the Research Topic, Objective, Scope and Outline

Stage 1 of the research involves initial study which there are two approaches used i.e. discussion with friends and lecturers regarding what research topic can be done. Initial literature review is also done to help get the idea of the research topic. After the initial study, the rough idea of the research topic is formed. The objective and scope of the research are fixed right after. Then, a research outline will be prepared in order to identify what kind of data will be needed in this research as well as on the data resources.

1.5.2 Stage 2: Collecting Data and Research Design

Collection of all relevant data and information is done during this stage. Data will be collected mainly through documentary analysis. All collected data and information are recorded systematically. Data collected are mainly from the Malayan

Law Journal, Singapore Law Report, Building Law Report, Construction Law Report and other law journals. It is collected through the Lexis-Nexis online database. All the cases relating to the research topic will be sorted out from the database. Important and related to the subject matters cases will be collected and used for the analysis at the later stage.

1.5.3 Stage 3: Analyzing and Interpreting Data

This stage of research involves data analysis, interpretation and data arrangement. This process is to convert the data collected to information that is useful for the research. Arrangement of data tends to streamline the process writing of the paper.

1.5.4 Stage 4: Writing-up

This stage is the final stage of the research process. It involves mainly the writing up and checking of the writing. Conclusion and recommendations will be made based on the findings during the stage of analysis.

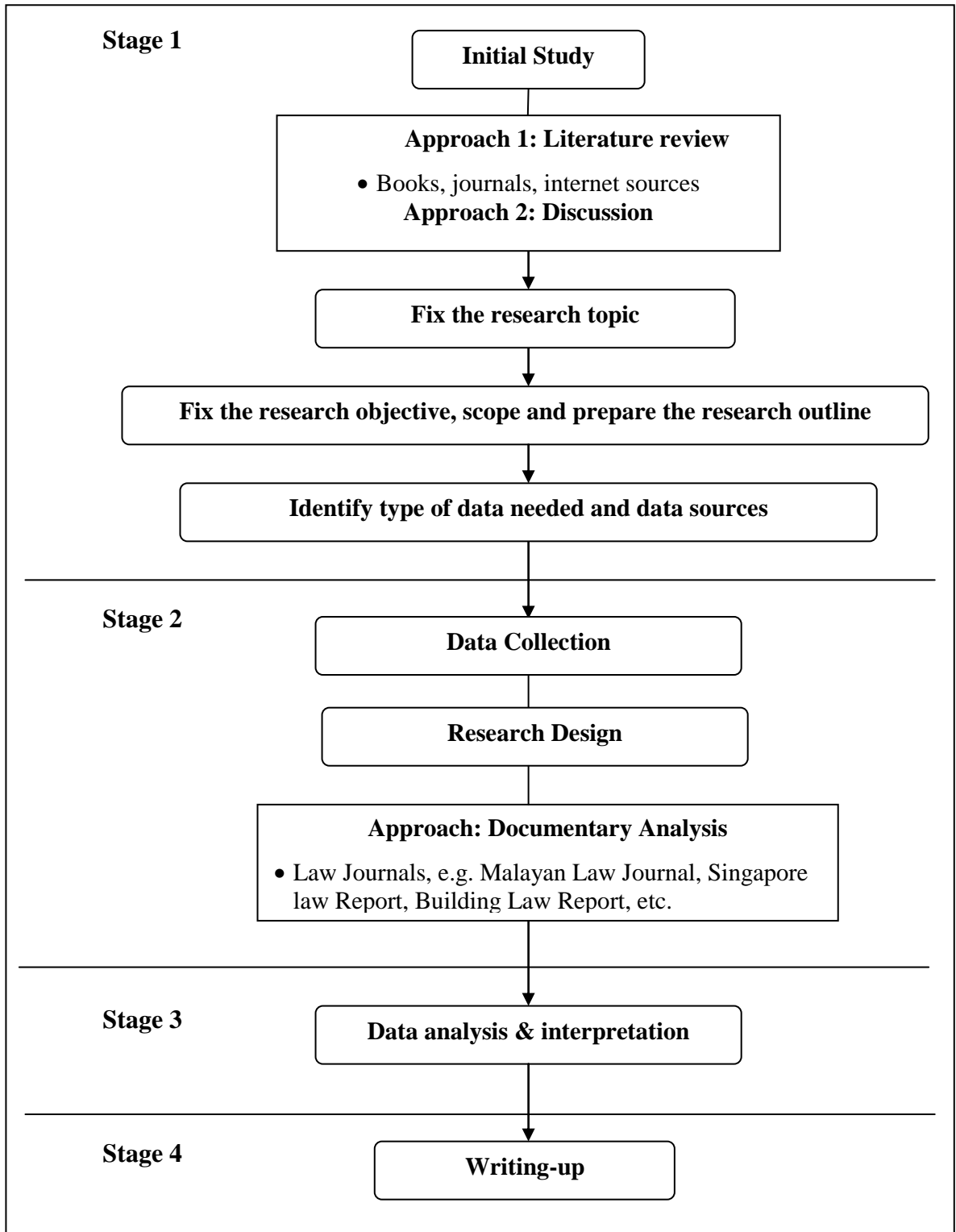


Figure 1.1 Research Methodology

1.6 Organisation of the Report

The Master Project consists of five chapters. The brief descriptions of each chapter are as follows:

Chapter 1: Introduction

This chapter presents the overall content of the whole project writing. It introduces the subject matter, the problems that are purported to solve. The objective is specified with an appropriate research method to achieve them.

Chapter 2: Lump Sum Contract

This chapter will explain comprehensively on the Lump Sum contract. Basically, it will explain on the definitions, the overall process or delivery of Lump Sum contract, and the advantages and disadvantages of this kind of contract which help to understand more in further chapters.

Chapter 3: Variation Orders in Construction Contract

Chapter 3 discussed the definition of variation, the nature of variation order provisions and effects of variations within the scope of construction contract. The explanation will be based on opinion of other researchers in various journals and text books, as well as law reports on this issue.

Chapter 4: Variations in Lump Sum Contract- Analysis of Law Cases

This chapter explained the analysis on what the law cases say about variation order in Lump Sum Contract. The analysis will be made based on all the law cases

gathered within the subject matter. It also analyses the results from the judicial decisions as reported in law reports and further explore related cases regarding the variation order in Lump Sum Contract.

Chapter 5: Conclusions

This chapter presents the conclusions for the overall dissertation and some recommendation and suggestion for the industry of further research.

1.7 Conclusion

In conclusion, the main criticism of the traditional Lump Sum Contract has been that, it invites a confrontational approach over disputes arising out of contract variations. Therefore, this study is to identify what are the issues that bring the parties to litigation regarding Variation Orders in this type of contract. The research has been conducted by analysing the law cases gathered from the Lexis Malaysia. The cases then were analysed via a documentary analysis. From the analysis, the issues regarding variation order in Lump Sum Contract has been identified and categorized under several issues discovered during the literature review. From that, a critical analysis is done on the judgment made by the court for the issues in contention as the findings of the study.

LIST OF REFERENCES

Ali, N. B. (2009). Judicial Interpretations Of The Term 'Lump Sum' In Construction Contract. *UTM Master Theses*.

Alty, G., & Job, M. (2010). Retrieved August 3, 2014, from Out-Law.com: <http://www.out-law.com/en/topics/projects--construction/construction-contracts/variations-to-contracts-and-changes-in-the-law/>

Antony, D., & Media, D. (2007, April 4). Retrieved June 13, 2014, from The Advantages of a Lump Sum Construction Contract: Chron.com.htm

Arain, F. M., & Pheng, L. S. (2005). *www.emeraldinsight.com*. Retrieved July 11, 2014, from The potential effects of variation orders on institutional building projects: <http://www.emeraldinsight.com/journals.htm?articleid=1515060&show=html>

Ashworth, A. (2012). *Contractual Procedures in the Construction Industry*. Edinburgh: Pearson Education Limited.

Creswell, W. (1954). *Creswell on Building Contracts, 5th Edition*. London: Pittman.

Davis, P., P, L., & D, B. (2004). *Building Procurement Method*. Brisbane: Icon.Net Pty Ltd.

Eggleston, B. (2001). *The ICE Design and Construction Contract: A Commentary*. Blackwell Science Ltd.

Elliott, R. F. (1993). *Building Contract Litigation*. London: Longman Professional.

Fletcher, L., Lee, R., & Tackaberry, J. A. (1980). *Construction Contract Dictionary*. The College of Estate Management. Spon Ltd. Londres

Fong, C. K. (1993). *Law and Practice of Constructon Contract Claims 2nd Edition*. Singapore: Longman.

Fong, C. K. (2004). *Law and Practice of Construction Contracts. 3rd Edition*. Singapore: Sweet & Maxwell Asia.

Fong, L. C. (2011). *The Malaysian PWD Form of Construction Contract*. Petaling Jaya: Thomson Reuters Malaysia Sdn Bhd.

Furmstone, M. (2000). *Building Contract Casebook. 3rd Edition*. . London: Powell-Smith & Furmston's.

Furst, S., & Ramsey, V. (2001). *Keating On Building Contracts*.

Group, T. E. (2007). *What Is A Quantum Meruit Claim?* The Entrusty Group, Master Builders.

Hibberd, P. R. (1986). *Variations in Construction Contracts*. London: Collins Professional and Technical Books.

Hinze, J. (1993). *Construction Contracts*. Boston: Irwin McGraw-Hill.

Ismail, A., Pourrostan, T., Soleymanzadeh, A., & Ghouyouchizad, M. (2012). Factors Causing Variation Orders and their Effects in Roadway Construction Projects. *Research Journal of Applied Sciences, Engineering and Technology* , 4969-4972.

Kheng, O. C. (2002). *Standard Construction Contracts In Malaysia. Innovations In Construction*. Melaka: Ck Oon & Co.

Kiong, R. H. (2010). *Variation Orders in Design and Build Contracts*. Skudai: UTM Master Project.

Knowles, J. R. (2008). *150 Contractual Problems and Their Solutions, 2nd Edition*. Oxford: Wiley-Blackwell.

Kumara, R. D. (2010). Valuation of Variation under Lump-Sum Contracts. *SLQS Journal* , 27-29.

LaMance, K. (2012, 7 17). *Legal Match*. Retrieved July 6, 2014, from <http://www.legalmatch.com/law-library/article/lump-sum-contract-lawyers.html>

Levy, S. M. (2007). *Project Management in Construction*. New York: Mc Graw Hill.

McGuinness, J. (2007). *The Law and Management of Building Subcontracts*. Oxford: Blackwell Publishing.

Mohamed, A. (2001). *Analysis and Management of Change Orders for combined Sewer over flow construction projects*. Wayne State University: Dissertation.

Mohammad, N., Che Ani, A., Rakmat, R., & Yusof, M. (2010). , Investigation on the Causes of Variation Orders in the Construction of Building Projecct- A Study in the State of Selangor, Malaysia. *Journal of Building Performance* , 73-83.

Murdoch, J., & W, H. (2000). *Construction Contracts- Law and Management*. London: Spon Press.

Murdoch, J., & Will, H. (1996). *Construction Contracts Law and Management*. London: E & FN Spon.

Nachatar, J. S., Abdul Aziz, H., & Abdelnaser, O. (2010). Variations in government contract in Malaysia. *Information Management-No 12* , 40-53.

Ndihokubwayo, R. (2008). *An Analysis of the Impact of Variation Orders on Project Performance*. Cape: Master Degree Project Cape Peninsula University of Technology.

O'Brien, J. (1998). *Construction Change Orders*. New York, NY,: McGraw Hill.

Pfeffer, D. J. (2010). *The Construction Contract: Lump Sum vs. Cost-Plus*. The New York Law Journal.

Powell-Smith, V., & Furmston, M. (2008). *A Building Contract Casebook*. London: Granada Publishing Ltd.

Procurement Practice Guide: Managing Variations. (2008). South Wales: NSW Government.

Purdy, M. E. (2008). *Construction Change Orders*. Washington: University of Washington.

Rajoo, S., & Singh KS, H. (2012). *Construction Law in Malaysia*. Petaling Jaya: Sweet & Maxwell Asia.

Ren, L. C. (2001). *lawgazette.com*. Retrieved January 12, 2014, from Variations in Construction Contracts: <http://www.lawgazette.com.sg/2001-2/Feb01-feature.htm>

Rodriguez, J. (2011). *About.com Construction*. Retrieved July 1, 2014, from Lump Sum Construction Contracts: <http://www.aboutconstruction.com>

Schexnayder, C. J., & Mayo, R. E. (2004). *Construction Management Fundamentals*. New York: Mc Graw Hill.

Scott, J. S. (1984). *Dictionary of Building. 3rd Edition*. Granada Publishing.

Scott, J. S., & H. MacLean, J. (1993). *The Penguin Dictionary of Building*. Michigan: Penguin Books.

Sherman, F., & Media, D. (2006). *BudgetingMoney.com*. Retrieved March 12, 2014, from The Advantages of a Lump-Sum Construction Contract: <http://The Advantages of a Lump Sum Construction Contract.Chron.com.htm>

Sim, L. C. (2007). *What Constitute a Variation in Construction from Legal Perspective*. Skudai: Faculty Built Environment.

Singh, H., & Kandan, K. S. (2005). Variation Claims - Pitfalls And Pratfalls. *Buletin Engenieur* , 36-42.

Sunday, O. A. (2010). *www.arcom.ac.uk*. Retrieved July 11, 2014, from http://www.arcom.ac.uk/-docs/proceedings/ar2010-0101-0110_Sunday.pdf

The City of Newcastle (2010): Retrieved on June 2, 2014, from http://www.newcastle.nsw.gov.au/__data/assets/pdf_file/0009/92628/140-A.pdf

The Joint Contracts Tribunal (1998) : Retrieved on July 6, 2014, from <http://www.jctltd.co.uk/traditional-procurement.aspx>

The Joint Contracts Tribunal. (1998). Retrieved July 7, 2014, from <http://www.jctltd.co.uk/traditional-procurement.aspx>

Turner, D. F. (1971). *Building Contracts: A Practical Guide*. London: George Godwin Ltd.

Walker, D., & Hampson, K. (2003). *Procurement Strategies - A Relationship-based Approach*. Oxford: Blackwell Publishing.

Williams, O. (2011, June). *lewissilkin.com*. Retrieved January 12, 2014, from <http://www.lewissilkin.com>

Wood, G., & Fitzalan, J. (2013). *Variations : A Comprehensive Overview*. Sydney: Baker & McKenzie.

Yahaya, A. (2013, June 27). *Commercial Issues*. Retrieved July 7, 2014, from Lump Sum Contract Based On Drawings And Specification (Without Quantities): http://commercialissues.blogspot.com/2013/06/lump-sum-contract-based-on-drawings-and_27.html

Yusoff, Z. (2009). *Employer's Recovery of Payment Caused by Variations Due to Designer's Negligence*. KL: UTM Master Project Thesis.