

PROCEDURE IN NEGOTIATION AMOUNTS IN CONSTRUCTION PROJECT  
DISPUTES

SUHAILI BINTI SA'ADON

UNIVERSITI TEKNOLOGI MALAYSIA

PROCEDURE IN NEGOTIATION AMOUNTS IN CONSTRUCTION PROJECT  
DISPUTES

SUHAILI BINTI SA'ADON

A project report submitted in partial fulfillment of the  
requirement for the award of the degree of  
Master of Science (Construction Management)

Faculty of Civil Engineering  
Universiti Teknologi Malaysia

JANUARY 2013

## DEDICATION

*This Report Project is lovingly dedicated to:*



*My respective family who have been my constant source of inspiration. They have given me the drive and discipline to tackle any task with enthusiasm and determination. Without their love and support this project would not have been made possible. Lot of love for Pn. Mariaton Binti Som and commemorate the passing of my late father named Sa'adon Bin Salim. May his soul in Allah s.w.t merciful.*

### *My Siblings*

*Salwa Sa'adon, Kamalli Sa'adon and Hairuambri Sa'adon*

*And to all my in-laws siblings*

*"It stretches, from the fog into sunshine,  
hopelessness into faith, between despair and joy"*

### *My Close Companions*

*Siti Suhaibah Mohd Ghazali and Sarina Sarman*

*"Friendship is the bridge, between lonely and loved,  
between a glance and a gaze. It crosses the chasm  
from hell to heaven, from Allah to man"*

*To All My Lovely Friends*

*Thanks for everything....*

## ACKNOWLEDGEMENTS

In the name of Allah, the Most Gracious, the Most Merciful. Alhamdulillah, all the praises and Thanks to Allah and may upon Prophet Muhammad S.A.W, the messenger of Allah. With Allah blessing and generosity, i have successfully completed this report project. I owe great many thanks to a great may people who helped and supported me during write this report project.

Firstly, I would like to express my deepest gratitude to my supervisor, Assoc. Prof. Aziruddin Ressang, for their generous advice, kind assistance and patiently guidance. Thanks you for all your time and valuable experiences that have shared with me regarding this study.

Secondly, I want to appreciate all the respondents from the contractor organizations, who generously spent their precious time to participate in the questionnaire survey of this study. I also want to thank my entire friends who directly or indirectly assisted me in this project study.

Last but not least, sincere gratitude and appreciation is forwarded to my family for care, moral support and understanding during two years of studying in Universiti Teknologi Malaysia.

SUHAILI SA'ADON

Faculty of Civil Engineering

Universiti Teknologi Malaysia

## ABSTRACT

Construction disputes can often be resolved using several techniques including the purpose of negotiation, mediation, dispute resolution boards, arbitration, and litigation. Negotiation is considered the most preferred technique due to the following facts; first it prevents litigation amongst project parties, and second it keeps a harmonious relationship between project participants. Further, negotiation saves the time, expenses and efforts that are associated with other resolutions techniques. The purpose of this paper is to provide a tool that is geared towards assisting construction contractors during negotiation process. Therefore, research methodology for the modules capture the main characteristics of the negotiation process including; the expected claim duration in the case of litigation, certainty of litigation, and contractor's intention to make litigation. The objective of this paper also described the associated factors affecting of these modules and their negotiation approaches in dispute resolution which have been determined based on interviews with claims' experts and questionnaire surveys. Analytical hierarchy process and utility theory are used to determine weights and utility values of attributes, respectively. Decision an analysis is used to estimate the equivalent monetary value of litigation. Hence, the findings from a case study are presented to illustrate the practical use of the proposed procedure in negotiation and its ability to determine the minimum acceptable claim amount. Consequently, research limitations are the knowledge of the negotiation was retrieved from the Johor Bahru construction industry. However, the utilized methodology can be applied to capture local contraction practices, law and politics in other construction industries. Thus, the value from this research presents a negotiation that is developed to assist contractors in calculating the lower threshold of a claim value, which can be considered, during construction disputes process with owners.

## ABSTRAK

Pertikaian pembinaan kebiasaannya diselesaikan dengan menggunakan beberapa teknik termasuk tujuan diadakan perundingan, pengantaraan, badan penyelesaian pertikaian, timbang tara, dan litigasi. Rundingan dianggap sebagai teknik yang sering digunakan kerana faktor berikut; pertama menghalang litigasi di kalangan pihak yang terlibat dalam industri pembinaan, kedua mengekalkan hubungan keharmonian di antara satu sama lain. Selain itu, rundingan juga menjimatkan masa, perbelanjaan dan usaha berkaitan dengan teknik penyelesaian. Tujuan kajian ini diadakan adalah salah satu daripada cara yang menjurus ke arah membantu pihak kontraktor pembinaan semasa proses rundingan. Dengan itu, metodologi penyelidikan merupakan modul yang menarik ciri utama proses rundingan diadakan termasuklah; tempoh tuntutan pembayaran yang dianggarkan terdapat dalam kes litigasi, kepastian litigasi, dan tujuan kontraktor bagi mengadakan litigasi. Objektif kajian ini menerangkan faktor berkaitan dengan modul serta pendekatan rundingan dalam penyelesaian pertikaian yang ditentukan berdasarkan temu bual bersama pihak kontraktor serta tinjauan soal selidik. Proses analisis hierarki dan teori utiliti yang digunakan bagi menentukan kepentingan serta nilai sifat utiliti. Keputusan analisis digunakan bagi menganggar nilai kewangan litigasi bersama. Justeru, penemuan dari kajian kes nyata menggambarkan penggunaan cara yang praktikal telah diutarakan dalam rundingan dan keupayaannya menentukan nilai tuntutan diterima adalah minimum. Oleh demikian, penyelidikan berkaitan dengan pengetahuan rundingan telah diambil daripada industri pembinaan sekitar kawasan Johor Bahru. Walau bagaimanapun, kaedah yang digunakan telah menjelaskan amalan pihak kontraktor tempatan, undang-undang dan politik dalam industri pembinaan. Kesimpulan dari kajian rundingan yang wujud untuk membantu pihak kontraktor dalam mengira keuntungan yang lebih rendah daripada nilai asal tuntutan bagi membuat pertimbangan semasa proses pertikaian pembinaan bersama pihak pemilik asal.

## TABLE OF CONTENTS

<b>CHAPTER</b>	<b>TITLE</b>	<b>PAGE</b>
	<b>TITLE PAGE</b>	<b>i</b>
	<b>DECLARATION</b>	<b>ii</b>
	<b>DEDICATION</b>	<b>iii</b>
	<b>ACKNOWLEDGEMENTS</b>	<b>iv</b>
	<b>ABSTRACT</b>	<b>v</b>
	<b>ABSTRAK</b>	<b>vi</b>
	<b>TABLE OF CONTENTS</b>	<b>vii</b>
	<b>LIST OF TABLES</b>	<b>xi</b>
	<b>LIST OF FIGURES</b>	<b>xiii</b>
	<b>LIST OF GRAPH</b>	<b>xiiiv</b>
	<b>LIST OF ABBREVIATIONS</b>	<b>xiv</b>
	<b>LIST OF APPENDICES</b>	<b>xivi</b>
<b>1</b>	<b>INTRODUCTION</b>	<b>1</b>
	1.1 Introduction	1
	1.2 Research Background	2
	1.3 Problem Statement	3
	1.4 Research Objective	4
	1.5 Research Scope	5
	1.6 Significance of the Research	5
	1.7 Research Methodology	6
	1.8 Arrangement of the Report	8
	1.9 Case Study	8

<b>2</b>	<b>LITERATURE REVIEW</b>	<b>11</b>
2.1	Introduction	11
2.2	Definition of Negotiation and Disputes	14
2.3	Nature of a Construction Industry Dispute	18
2.4	Various Methods of Disputes Resolution	21
2.4.1	Negotiation	21
2.4.2	Litigation	22
2.4.3	Arbitration	23
2.4.4	Mediation	24
2.4.5	Adjudication	26
2.4.6	Expert Determination	27
2.4.7	Mini-Trial	28
2.4.8	Hybrid ADR	28
2.2.9	Dispute Review Board	29
4.2.10	Dispute Resolution Advisor	30
2.5	Consideration to Avoid Disputes	31
2.5.1	Early Consideration and Allocation Project Risks	31
2.5.2	Communication of Potential Problems or Claims at the Earliest Opportunity	32
2.5.3	Realistic Assessment of the Value and Impact of a Claim	33
2.5.4	Appropriate Attitude and Communication	34
2.5.5	Education	34
2.5.6	Early Negotiation	35
2.5.7	Thinking Outside the Box	36
2.6	Concept of Negotiation in Construction Project Disputes	38
2.7	Basic Negotiation Techniques	41
2.8	Basic Principles to Achieving a Successful Negotiation	46
<b>3</b>	<b>METHODOLOGY OF STUDY</b>	<b>50</b>
3.1	Introduction	50
3.2	First Stage	51
3.3	Second Stage	52
3.3.1	Primary Data	52



3.3.1.1	Questionnaire	53
3.3.1.2	Interview	55
3.3.2	Secondary Data	56
3.4	Third Stage	57
3.4.1	Likert Scaling Method	57
3.4.2	Data Analysis	59
3.4.2.1	Reliabilitytes (Validity Assessment)	59
3.4.2.2	Frequency and Mean Value	60
3.4.2.3	Relative Importance Index (RII)	61
3.5	Fourth Stage	62
3.6	Summary	63
<b>4</b>	<b>DATA ANALYSIS AND DISCUSSION</b>	<b>63</b>
4.1	Introduction	63
4.2	Analysis of the Questionnaire	63
4.3	Analysis Results of Respondent Information (Frequency Analysis)	64
4.3.1	Respondents Gender	64
4.3.2	Respondents Designation	65
4.3.3	Respondents Organisation	65
4.3.4	Respondents Age Group	66
4.3.5	Respondents Years of Experience	66
4.3.6	Respondents Project (Contract Value)	67
4.3.7	Respondents Project (No. of Employees)	67
4.4	Analysis Results of Severity Types of Disputes in Construction Project	69
4.4.1	Realibility Test (Cronbach's Alpha)	69
4.4.2	Mean Value Analysis	69
4.4.3	Realative Importance Index (RII)	69
4.5	Analytical Results for Factor Affecting from Applying Negotiation	71
4.6	Analysis Results for negotiation approaches in disputes resolution	73
4.7	Analysis Results for procedure of estimating negotiation amounts	75

<b>5</b>	<b>CONCLUSIONS AND RECOMMENDATIONS</b>	<b>77</b>
5.1	Introduction	77
5.2	Conclusions of Study	78
5.3	Limitations of Study	80
5.4	Recommendations for Further Study	81
	<b>REFERENCES</b>	<b>82</b>
	<b>APPENDIX</b>	<b>87</b>

## LIST OF TABLES

TABLE NO.	TITLE	PAGE
2.1	Generic Types of Disputes (Sources: Various Journal)	17,18
2.2	Sources of Construction Dispute (Source: Various Journals)	20
3.1	Classification of frequency Rating Scale (Section B, D and E - Questionnaire)	59
3.2	Classification of frequency Rating Scale (Section C - Questionnaire)	59
3.3	Ranges of reliability coefficients	60
3.4	Classification of RII (Section B until Section E - Questionnaire)	61
4.1	Values of Cronbach's Alpha for Section B of questionnaire	69
4.2	The severity of disputes by type of disputes in construction project using mean index	70
4.3	Moderately agree and disagree type of dispute in construction project	71
4.4	Values of Cronbach's Alpha for Section C of questionnaire	72
4.5	Level of effect (seriousness) of the design factors affecting from applying negotiation in construction project disputes categorized by type of factor	72

4.6	Extremely serious, serious and moderately serious design factors	73
4.7	Negotiation Approaches analyzed using Mean Value and RII (categorized by type of approaches)	75
4.8	Procedure for Estimating Negotiation Amount analyzed using Mean Value and RII (categorized by type of process negotiation)	76

**LIST OF FIGURES**

<b>FIGURE NO.</b>	<b>TITLE</b>	<b>PAGE</b>
1.1	Methodology of Study	7
1.2	Master Plan for Location Plan of East Ledang	10
1.3	Type of Semi-Detached house (Types 2C & 2D)	10
2.1	Generic Types of Disputes (Sources: Various Journals)	16
2.2	Sources of Construction Dispute (Source: Various Journals)	37

**LIST OF GRAPH**

<b>GRAPH NO.</b>	<b>TITLE</b>	<b>PAGE</b>
4.1	Respondents' gender frequency	64
4.2	Respondents' Designation	65
4.3	Respondents' Organization	65
4.4	Respondents' Age Group	66
4.5	Respondents' Years of Experience	66
4.6	Respondents' Project (Contract Value)	67
4.7	Respondents' Project (No. of Employees)	67
4.8	Tabulation of respondents gender, designation, contract value and number of employees	68

**LIST OF ABBREVIATIONS**

<b>ADR</b>	Alternative Dispute Resolution
<b>AI</b>	Average Index
<b>CIDB</b>	Construction Industry Development Board
<b>DMs</b>	Decision Makers
<b>DRA</b>	Dispute Resolution Advisor
<b>DRB</b>	Dispute Resolution Board
<b>FIDIC</b>	International Federation of Consulting Engineers
<b>GMCR</b>	Graph Model for Conflict Resolution
<b>ICE</b>	Institution of Civil Engineers
<b>IEM</b>	Institution of Engineers Malaysia
<b>ISM</b>	Institution of Surveyors Malaysia
<b>JKR</b>	Jabatan Kerja Raya
<b>PAM</b>	Pertubuhan Akitek Malaysia
<b>RII</b>	Relative Importance Index
<b>SO</b>	Superintending Officer
<b>SPSS</b>	Statistical Package for Social Science

**LIST OF APPENDICES**

<b>APPENDIX</b>	<b>TITLE</b>	<b>PAGE</b>
A	Questionnaire Survey Form	87



## **CHAPTER 1**

### **INTRODUCTION**

#### **1.1 Introduction**

Construction contracts in Malaysia now become more complex's and modern not only about building but also become more efisien, fungsional and have more technology. Every construction project is bound to have conflicts. Conflicts would exist when incompatibility of interest happened. Construction contracts are drafted to regulate the risks as well as conflicts in a project. Disputes would occur due to miscommunication, ignorance, and poor understanding on the contractual obligations and expectations laid in the contracts. At the same time, the number of disputes has also increased putting an ever increasing stress on the existing methods of disputes resolution. When disputes arise, the parties involved will traditionally go to the courts or arbitration for resolve. These traditional methods however have the inherent disadvantages of high cost and time consuming.

In Malaysia, negotiation had been introduced as one of the alternative dispute resolution method despite mediation, arbitration and litigation. Negotiation allows the parties involved in dispute to negotiate to find the solution on a win-win situation and if this fails then the parties are free to proceed with the traditional methods, i.e. mediation, litigation and arbitration. Due to lack of knowledge and awareness among those parties that involved in the construction industry, negotiation has not been widely accepted or practiced among the practitioners in the field.

This study was carried out to investigate on the level of awareness on the existence of negotiation among the parties involved in construction industry constraint in Johor Bahru area. The study used a quantitative research design, whereby 60 sets of questionnaires had been distributed and only 35 sets of respondents had participated in the study. Data was collected using a self-administered questionnaire distributed to the participants.

The results indicated that negotiation at the moment slowly received acceptance among those involved in construction as they have quite little knowledge on the subject matter despite their awareness on its existence. Like many other changes, it will take many more years before negotiation can be accepted and practiced by many. Meanwhile, a lot more needed to be done to create awareness and impart knowledge on those involved in construction disputes about negotiation.

## **1.2 Research Background**

In the construction industry, the Alternative Dispute Resolution methods have been acknowledged as a more suitable and efficacious mode of resolution of disputes rather than litigation. However, many people often refer the Alternative Dispute Resolution as the alternatives to both arbitration and litigation, probably because of arbitration's failure to achieve some of the objectives, particularly with regard to time and cost. One of the new alternative mechanisms in the disputes resolutions is the negotiation. Although the prevalent alternative dispute resolution mechanism continues to be arbitration, mediation as yet another alternative to litigation as a mechanism for dispute resolution is slowly gaining popularity in this jurisdiction.

The stage is negotiation, which is a very popular informal method in dispute resolution. This stage is to communicate the grievance and negotiate for a settlement.

This negotiation technique is a preferred choice of the disputants, with most disputes being resolved through this process (Cheung *et al.*, 2000). It is the least expensive, and it can preserve the working relationship of the parties involved. In negotiation, the parties have absolute freedom with respect to the form, process and type of agreement. In order to make it successful, the negotiation demands cooperative effort from the disputants (Cheung, 1999; Edwin and Henry, 2005).

However, increased project complexity and shortening of the project life cycle have made contact administrating difficult. Negotiation is not always workable and bringing consensus in the end. It is because projects will be diverging from what has been anticipated and triggered to other more formal method of dispute resolution.

### **1.3 Problem Statement**

Conflicts and disputes are co-related. The philosophy of conflicts and disputes need to be clarified before understanding and classifying the attributes of dispute resolutions techniques. In Malaysia as in many other jurisdictions a party to a construction contract who is in dispute with the other party can have that dispute resolved by a court of law through litigation unless it is has entered into an agreement with the other party to have such dispute resolved by an alternative method of dispute resolution (Battersby, 2002). The reasons for seeking alternative methods of dispute resolution can be many and varied but normally include (Battersby, 2002): privacy; time savings; cost savings; technical expertise in decision making; finality; and preservation of business relationships.

Traditionally, these objectives have been sought in the construction industry through arbitration. Amongst other things, to determine solution for the disputes through litigation, it is often (Caller, 2002): an intimidating experience for the

parties; expensive especially in respect of legal costs and fees; time consuming with lengthy meetings between the parties and lawyers and in preparing evidence and discussing strategies; long-winded and protracted as correspondence flows back and forth between the parties and their lawyers and in waiting for court hearings; damaging to business interests. Court hearings result in private business being aired in public, jeopardizing public confidence in one's business affairs; harmful to relationships since the win/lose adversarial aspect of litigation tends to further alienate the parties making it difficult to maintain business relations after the dispute has been brought to a judicial conclusion.

Therefore, this study is an attempt to investigate the level of acceptance of negotiation in practice. The surrounding issues about the negotiation by which create barriers towards the implementation of negotiation.

#### **1.4 Research Objective**

The study aims to address the need to review existing contract administration and dispute resolution practices for construction industry and to suggest a framework to estimate negotiation amount in construction dispute. To achieve the above aim the following objectives have been identified:

- i. To study factor affecting the disputed parties from applying negotiation.
- ii. To identify negotiation approaches in dispute resolution and contract administration.
- iii. To propose procedure for estimating negotiation amounts.

## **1.5 Research Scope**

The scope of data collection in this study is limited and will focus on the following areas and to the subject matters;

- i. Investigation on awareness, knowledge and competencies amongst the consultants, contractors, developers and employers confined in Johor Bahru area and the data had been obtained from CIDB, ISM, PAM and etc.
- ii. Determine the problems and to achieve the solutions as barriers of negotiation is not yet popular as one of the main process in seeking resolutions between the disputing parties.

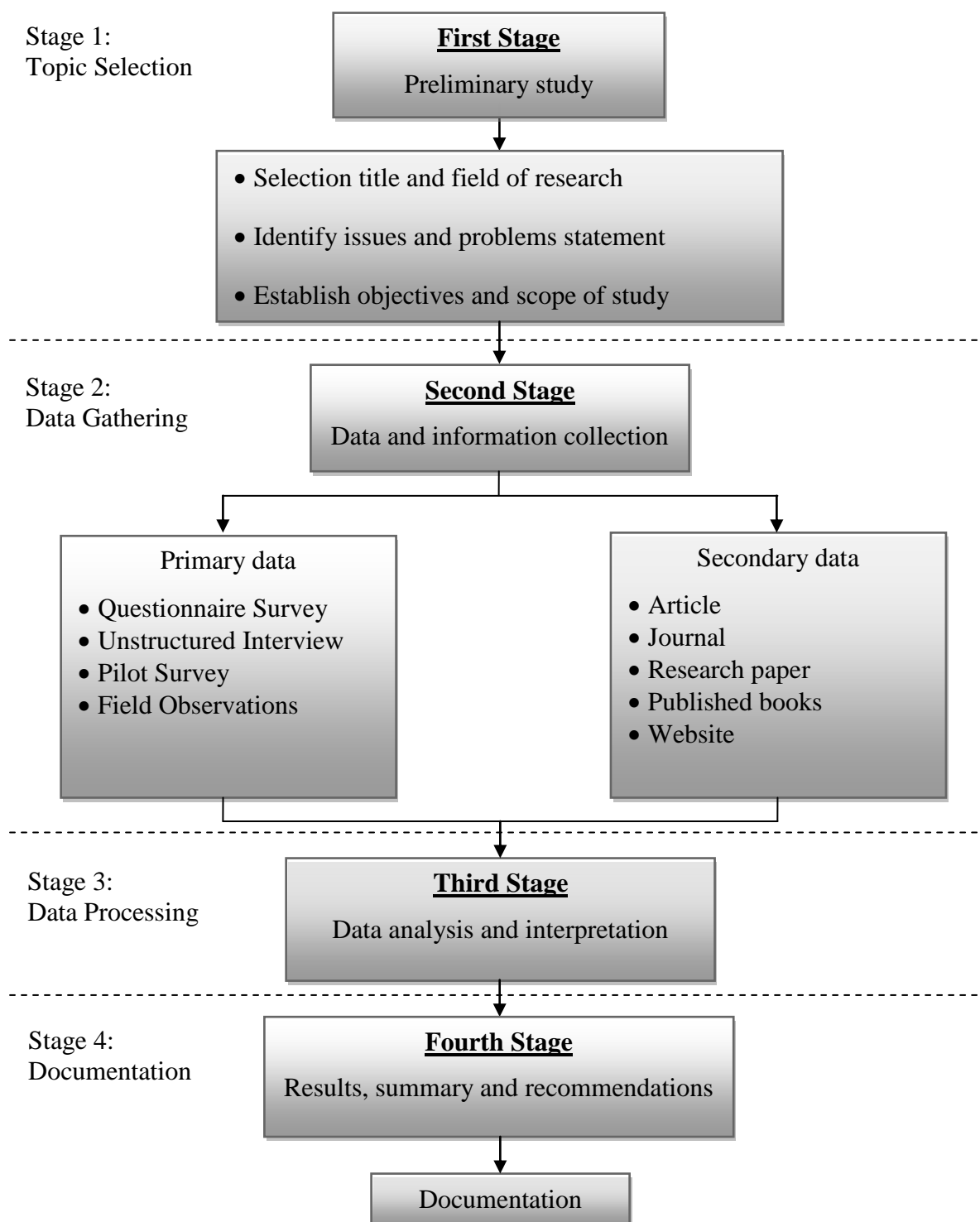
## **1.6 Significance of the Research**

Disputes and claims often arise as a result of the increasing complexity of construction processes. Disputes arise due to several reasons including: design errors; changes; multiple prime contracting parties; complexity and magnitude of the work; different site conditions; inadequate planning; defective specifications; financial issues; communication problems; and force majeure. Complicated litigation or arbitration could arise because of any one of the previous factors, affecting the costs, and the parties' communication and relationship (Hoogenboom and Dale, 2005). Also, the progress and duration of construction projects are affected by such disputes and claims. Disputes may cause owners to lose their investment revenue because of the associated delays. They also have negative impacts on contractors since projects' delays are associated with an increase in materials and labour costs. In addition, disputes decrease the ratings of contractors in financial prequalification evaluations.

## 1.7 Research Methodology

The study methodology is a guideline for the research to be completed in a systematic way to achieve the study objectives. In this study, the research process generally consisted of 4 stages carried on the followings;

- i. The study approach used for this study was quantitative research. The primary data was collected by using the questionnaires survey via mail and internet, pilot survey, unstructured interview and field observations. The secondary data was collected from books, journals, research papers, magazines and etc.
- ii. The population of the study had been drawn among the parties involved in construction industry in Johor Bahru area such as employers, contractors and professional advisors whereby the list had been obtained from CIDB, ISM, PAM and etc. approximately 60 respondents.
- iii. The study method used for the sampling technique was quota sampling by identifying the population of the peoples involved in construction industry and the data had been obtained from CIDB, ISM, PAM and etc.
- iv. The collected data had been analyzed using selected descriptive statistic techniques. This includes mean, frequency and average index method.
- v. The last stage of the study process. It mainly involved writing up and recommendations for future research.



**Figure 1.1:** Methodology of Study

## **1.8 Arrangement of the report**

The study report consists of five chapters where the content of each chapter are summarized as follows:

- i. Chapter 1 is the introduction of the study includes the problem statements, the aim and objectives of the study, the scope of work and the methodology of study.
- ii. Chapter 2 is on literature review which focused on the definition of estimating negotiation amounts, concept of negotiation in construction project disputes, impact of negotiation approaches in disputes resolution, assessment of parties involved in construction from applying negotiation and procedure for estimating negotiation amounts.
- iii. Chapter 3 describes about the method of study and data analysis.
- iv. Chapter 4 discusses the results and data analysis of the study.
- v. Chapter 5 includes the conclusion of the study and some recommendations for the future study.

## **1.9 Case Study**

UEM Land Berhad is the Master Developer of 24,000 acres land in Nusajaya, the heart of Iskandar Malaysia, Johor, Nusajaya Residences has currently 5 on-going developments which comprise of Ledang Heights, East Ledang, Horizon Hills, Nusa Idaman and Nusa Bayu. Nusajaya Residences will combine the best of urban living and natures to create a balance and harmonious lifestyle. Each development has its own concept, target groups, range of products and point of differentiation that is clear and distinct.



**East Ledang** International Resort Homes with the land area of 365 acres is one of the jewels of UEM Land Berhad. It is located strategically near the Second Link, Malaysia's second international gateway to Singapore (15 minutes journey) and only 5 minutes from Kota Iskandar.

Upon completion of the Development, East Ledang will comprise approximately 2,544 residential and commercial units. It is designed around the theme 'East meets West' combining tropical gardens, including a two acres forest and state-of-the-art facilities, fixtures and fittings. East Ledang is based on a secured, gated and guarded concept and the development will be complemented with 31 gardens spaces, lakes and wetlands, clubhouse and low density residential units.

The Development consists of mixed high development with components of Link Duplexes, Twin Villas, Villas, Apartments, Town Houses and Commercials. Different concept may be proposed for different precinct to give reflect neighbourhood's identity. The overall Development of East Ledang is expected to complete in 2015. Currently products are priced from RM250,654.00 to RM3,821,888.00 and a total of 1,157 units in 13 phases have been launched, since 23 February 2008. The housing project for the main buildings of Phase 2C & 2D show houses consist with 8 units (4 pairs) of Semi-detached which are divided as follows:-

Item	No. of Unit	Semi-Detached Type
1	38	Type C & C1 – 2,648 sqft
2	1	Type C2 – 2,702 sqft
3	38	Type D & D1 – 2,551 sqft
4	1	Type D2 – 2,616 sqft

The semi-detached houses are to be developed as high end residential product located in East Ledang, Nusajaya. Due to high demand from the potential local and foreign purchasers, the management required UEML to develop a wide range of high end products for East Ledang. Therefore, Phase 2C & 2D townhouses including external infrastructural and landscaping works need to be urgently available to the current market.

The area is located within East Ledang inside the residential park named Melody Park. The park is an immediate neighbour to The Ledang Urban Retreat.

## REFERENCES

- Ajibade Ayodeji Aibinu<sup>1</sup>(February 2009). *Avoiding and Mitigating Delay and Disruption Claims Conflict: Role of Precontract Negotiation*. Journal Of Legal Affairs And Dispute Resolution In Engineering And Construction
- Andrea P. Kern, Carlos T. Formoso (2002). *Guidelines for Improving Management in Fast, Complex & Uncertain Construction Project*. Journal from Federal University of Rio Grander Do Sul (UFRGS)
- Ashworth, A. (2006). *Contractual Procedures in the Construction Industry*. London: Prentice Hall.
- Broome, J. C. and Hayes, R. W. (1997). *A Comparison of the Clarity of Traditional Construction Contracts and of the New Engineering Contract*. International Journal of Project Management.
- Bryan S. Shapiro, Q.C. *Dispute Prevention/Resolution Negotiation Techniques*. Retrieved:October19,2012.[https://www.dispute\\_prevention/resolution\\_negotiation\\_techniques.com](https://www.dispute_prevention/resolution_negotiation_techniques.com)
- Carol Menassa, A.M.ASCE<sup>1</sup>; Feniosky Peña Mora, M.ASCE<sup>2</sup>; and Neil Pearson<sup>3</sup> (March 2010). *Study of Real Options with Exogenous Competitive Entry to Analyze Dispute Resolution Ladder Investments in Architecture, Engineering, and Construction Projects*. Journal Of Construction Engineering And Management
- Cheung, S. O. (1999). *Critical Factors Affecting the Use of Alternative Dispute Resolution Processes in Construction*. International Journal of Project Management.
- Cheung, S. O., Kenneth, T. W. Y. and Henry, S. (2004). *Construction Negotiation Online*. Journal of Construction Engineering and Management.

- Cheung, S. O., Yiu, T. W. Y. and Yeung, S. F. (2006). *A Study of Styles and Outcomes in Construction Dispute Negotiation*. Journal of Construction Engineering and Management.
- Chong, HY and Rosli MZ, *Application of the Delphi Method to Construction Law Research*, 5th International Conference on Interdisciplinary Social Sciences, Cambridge, United Kingdom, 2-5 August 2010.
- Christer Norström, Mikael Gustafsson, Kristian Sandström, Jukka Mäki-Turja and Nils-Erik Bånkestad(1996). *Findings from introducing state-of-the-art real-time techniques in vehicle industry*. Department of Computer Engineering Mälardalen University, Västerås, Sweden
- Dispute Review Boards is largely based on the. *Construction Dispute Review Board Manual* (Matyas, et al. 1996).
- Edwin H.W. Chan and Henry C.H. Suen (September 2004). *Dispute resolution management for international construction projects in China*. Journal from Department of Building and Real Estate, The Hong Kong Polytechnic University, Hong Kong SAR, People's Republic of China.
- Fellow, R. F., and Hancock, R. (1994). "Conflict resulting from cultural differentiation: An investigation of the new engineering contract." Council of International Construction Research and Documentation Proc. on Construction Conflict: Management and Resolution, Rotterdam, The Netherlands, 259–267.
- Feniosky Pen~A-Mora,1 Member, Asce, And Tadatsugu Tamaki (April 2001). *Effect Of Delivery Systems On Collaborative Negotiations For Large-Scale Infrastructure Projects*. Journal Of Management In Engineering, Student Member, Asce.
- Franklin M. Fisher (1995). *The Economics of Water Dispute Resolution, Project Evaluation and Management: An Application to the Middle East*. Journals Oxford Ltd, Massachusetts Institute of Technology, Cambridge, MA 02139, USA.
- Helen S. Ng, Ph.D.1; Feniosky Peña-Mora, M.ASCE2; and Tadatsugu Tamaki, M.ASCE3(April 2007). *Dynamic Conflict Management in Large-Scale Design and Construction Projects*. Journal Of Management In Engineering

ISARC-2008, (June 26-29,2008) *Determination Of Rational Method For Resolution Of Disputes With The Help Of Multi-Criteria Negotiation Decision Support System For Real Estate*. The 25th International Symposium on Automation and Robotics in Construction.

J. Mark Taylor, PhD, JD and Will Carn, MS, LEED AP, (2002). *Dispute Resolution: A Preliminary Report on Changes Taking Place in Commercial Construction*. Journal Paper from Auburn University, Auburn, Alabama.

J. William Ernstrom, *Construction Contract Negotiation*, Workshop M on IRMI, United Kingdom, 9 November 2007.

James S. Gillespie & Research Scientist (February, 1998). Final Report; *Estimating User Costs As A Basis For Incentive / Disincentive Amounts In Highway Construction Contracts*. Virginia Transportation Research Council (The Virginia Department of Transportation and the University of Virginia)

Kamalesh Panthi (September 15, 2007). *Prioritizing and Estimating Hydropower Project Construction Risks: A Case Study of Nyadi Hydropower Project*. Journal Paper from Department of Construction Management, College of Engineering and Computing Florida International University

Marilyn Klinger, Sedgwick Deter Moran & Arnold LLP (Mar. 1, 2009); *Confronting Construction Conflicts-*; Retrieved October 25, 2012. <http://ecmweb.com/ops-amp-maintenance/confronting-construction-conflicts>

Michael Skene and Rick Shaban(March 6, 2002). *Strategies to Avoid and Resolve Construction Disputes*. A conference held in Vancouver, B.C. hosted by Pacific Business & Law Institute

Mohamed Marzouk and Mohamed Moamen(16 October 2007); *A framework for estimating negotiation amounts in construction projects*; Structural Engineering Department, Faculty of Engineering, Cairo University, Giza, Egypt

Mosaic white paper;(2009); *Dispute Management in Contracts*; Retrieved:June 11,2012.<http://www.mosaicprojects.com.au/WhitePapers.htm>

- Norb Slowikowski, Hard-Hat Productivity; *The Art of Negotiation*. Retrieved November 15, 2012. <http://www.constructionbusinessowner.com/topics/management/construction-workforce-management/art-negotiation>
- Ofori, G. (1984). "Improving the construction industry in developing countries." *Constr. Manage. Econom.*, 2, 127–132.
- Oon Chee Kheng (24 May 2003); *Resolution Of Construction Industry Disputes*. A lecture delivered to The Institution of Engineers, Malaysia (Negri Sembilan Branch), in Seremban.
- Paul S. Chinowsky and Jorge A. Vanegas, (1996). *Combining Practice and Theory in Construction Education Curricula*. Georgia Institute of Technology.
- Richard J. Gebken III and G. Edward Gibson, P.E., M.ASCE<sup>2</sup> (2006); *Quantification of Costs for Dispute Resolution Procedures in the Construction Industry*; *Journal Of Professional Issues In Engineering Education And Practice* © Asce / July 2006
- S. Ping Ho, A.M.ASCE,<sup>1</sup> and Liang Y. Liu, M.ASCE<sup>2</sup> (January/February 2004); *Analytical Model for Analyzing Construction Claims and Opportunistic Bidding*. *Journal Of Construction Engineering And Management*.
- Sai On Cheung<sup>1</sup>, Roy F. Au-Yeung and Vicky W.K. Wong. (May 2004). *A CBR based dispute resolution process selection system*. *International Journal of IT in Architecture, Engineering and Construction*. Construction Dispute Resolution Research Unit, Department of Building and Construction, City University of Hong Kong
- Saied Yousefi<sup>1</sup>; Keith W. Hipel<sup>2</sup>; and Tarek Hegazy, M.ASCE<sup>3</sup> (July 2010). *Attitude-Based Negotiation Methodology for the Management of Construction Disputes*. *Journal Of Management In Engineering*.
- Sai-On Cheung, & Henry C.H. Suen (30 May 2002). *A Multi-Attribute Utility Model for Dispute Resolution Strategy Selection*. *Journal Paper from Kowloon, Hong Kong*.
- Therese Isaksson (Stockholm 2002). *Model For Estimation Of Time And Cost Based On Risk Evaluation Applied On Tunnel Projects*. Doctoral Thesis, Division of Soil and Rock Mechanics, Royal Institute of Technology, Stockholm, Sweden.