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THE POTENTIAL OF GRAPH MODEL AS DISPUTE RESOLUTION IN
MALAYSIA

WAN FAAIZAH BINTI WAN HUSAIN

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

Faculty of Civil Engineering
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Specially dedicated to my beloved mother, late father, siblings and friends

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#**ACKNOWLEDGEMENT**

First of all, I wish to express my sincere appreciation to my project supervisor, Associate Professor Dr. Aminah bt Md Yusof for her encouragement and guidance. Her dedication will always be remembered.

On the other hand, I am thankful to those who have spent their invaluable time completing the questionnaire.

I am also very thankful to those who have shown their support to the making of this dissertation especially my family members and friends for their moral support throughout the process. Greatest thanks to Nurul, Sam, Cha, Ili, Yeen and Abu (named a few) for invaluable help while the author was carrying out the research work.

Finally, I wish to thanks all my fellow classmate (Pia, Yoke and Ila) and officemate (Amni, Tiha and Fida) who have given their support directly and indirectly to ensure a successful completion of the project report.

#

ABSTRACT

Normally, in every construction project, there will be conflicts and disputes. Conflicts and disputes arose from the uncertainties inherent in assessing and predicting the construction condition. In resolving the conflict and disputes for construction industry, various dispute resolution methods have been and continue to be explored, but it is still unsatisfactory due to increases in arbitration and litigation cases. In this study, a formal approach is presented for systematically resolving construction conflicts in Malaysia. This research aims at exploring the potential application of graph model for conflict resolution (GMCR) in dispute resolution in between the owner and main contractor in Malaysia. In order to achieve the desired aim, three (3) objectives have been set; (i) to study conflict, dispute, and resolutions in Malaysia, (ii) to study and explore the application of Graph Model Conflict Resolution; and (iii) to review the possibility of the potential application of GMCR in construction dispute in Malaysia. The data and information of the factors contribute to root causes of disputes, sources of dispute, and dispute resolution gathered from the questionnaire survey were analysed. The result of the study are important in order to see the potential of GMCR in conflict resolution. The study shows that although the respondents have no knowledge on GMCR, most of the criteria of GMCR are preferred by the respondents. Thus, this indicates the potential of GMCR as dispute resolution in Malaysia.

ABSTRAK

Kebiasaannya, dalam setiap projek pembinaan, konflik dan pertikaian akan berlaku. Konflik dan pertikaian wujud disebabkan oleh ketidakpastian di dalam mengkaji dan membuat ramalan seperti yang terkandung di dalam syarat - syarat kontrak. Dalam menyelesaikan konflik dan pertikaian yang sering berlaku di dalam industri pembinaan, pelbagai kaedah penyelesaian telah diaplikasi dan diselidiki secara berterusan, namun ianya masih menemui jalan buntu. Kenyataan ini dapat dilihat dengan pertambahan kes - kes pertikaian di dalam timbangtara dan mahkamah pada masa kini. Kajian yang dibuat oleh penulis telah mengambil kira satu kaedah untuk menangani masalah –masalah pertikaian dalam sektor pembinaan secara sistematik. Ia bertujuan untuk mendalami potensi penggunaan Penyelesaian Pertikaian Bentuk Graf [*Graph Model Dispute Resolution (GMCR)*] di dalam menyelesaikan pertikaian antara pemilik dan kontraktor di Malaysia. Bagi mencapai tujuan kajian, tiga (3) matlamat kajian telah ditetapkan iaitu (i) untuk mengkaji konflik, pertikaian dan kaedah – kaedah yang digunakan untuk menangani sesuatu konflik dan pertikaian, (ii) untuk mengkaji dan mendalami aplikasi GMCR, dan (iii) untuk mengenalpasti potensi kebarangkalian GMCR boleh diguna pakai di Malaysia. Segala data dan maklumat yang diperolehi daripada borang soal selidik telah dianalisis. Keputusan daripada analisis ini amat penting untuk mengetahui potensi aplikasi GMCR. Kajian ini telah membuktikan bahawa walaupun responden tidak mempunyai pengetahuan tentang GMCR, namun kebanyakan daripada ciri –ciri GMCR dipersetujui oleh responden dalam menyelesaikan sesebuah pertikaian sekaligus membuktikan bahawa aplikasi GMCR ini berpotensi untuk diguna pakai.

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LIST OF ABBREVIATION

ADR.	-	Alternative Dispute Resolution
BQ	-	Bills of Quantities
CIDB	-	Construction Industry Development Board
DM's	-	Decision Makers
DRB	-	Dispute Review Board
FIDIC	-	International Federation of Consulting Engineers
GMCR	-	Graph Model Dispute Resolution
IEM	-	Institution of Engineer Malaysia
KLRCA	-	Kuala Lumpur Regional Centre
LAD	-	Liquidated Ascertain Damages
SO	-	Superintending Officer
VO	-	Variation Order

CHAPTER 1

INTRODUCTION

1.1 Background of the Study

The construction industry in Malaysia is a competitive high risk business as the nation strives to emerge as a developed country. Construction industry involved from small to large scale of project. For larger construction project, it is virtually impossible for the entire project to be completed without any disputes developed between parties working on the construction project.

In every project, normally there will be conflicts. Conflicts are varies in size, nature and complexity. Normally conflicts arise because of money. Conflicts will leads to dispute within parties in construction. People always dispute about the late and non payment by client, delay of construction works by contractors, quality not according to specification etc. Even though in Malaysia, standard condition of contract has been used (PWD form, PAM form, CIDB form, FIDIC form) as guidelines to all parties, still, conflicts occur to most or all construction projects.

Dispute normally starts with conflicts by interest's party. When there are no improvements about the conflicts, then claim by the interested parties may occur. The claims then will lead to disputes among them. According to Kumaraswamy and Yogeswaran (1998), sources of disputes are mainly related to construction matters such as variation, extension of time, payment, quality of technical specification, availability of information, administration and management, unrealistic client expectations and determination. Normally dispute arises due to unplanned for change

in construction project. Such change cause additional work beyond that expected, resulting in extra cost and time. This will leads to issue such as non payment, late payment and time delay. The rising cost, delay and risk in disputes has prompted the construction industry to look for the new and more efficient ways to resolve these dispute outside the court.

Within past decades, various mechanism of Alternative Dispute Resolution (ADR) has been developed to be used during nearly any stage of construction project (Steen, 1994). ADR comprises of methods by which conflicts and disputes are resolved privately other than through litigation. Common form of ADR are negotiation, arbitration, mediation, expert determination, neutral fact finding, adjudication, dispute review board, private judging, mini trial and med-arb (Chan, E.H.W. and Suen, H., 2005).

When conflicts arise between parties involved in the construction, the first thing the disputed parties do is normally negotiate with each other. This situation is due to negotiation is the least hostile approach compare to other ADR method. Apart from that, the process of negotiation is fast and also least costly compared to other ADR method. Negotiation is also part of daily routine in construction activities among participants who may different positions, goals and attitudes. Negotiations among construction participants can be the most efficient form of dispute resolution (Yousefi, Hipel and Hezagy, July 2010). With the demand on negotiation and decision making skills continually increasing, particularly for engineers and project managers, there are now many computerized decision analysis systems commercially available (Maxwell, 2002). Previously, Game Theory has been widely used to model the conflicts and predict possible equilibria. It is said that the current approach of conflict resolution tends to be addressed by specifying the resolution method to be used.

1.2 Problem Statement

Due to the nature of construction industry, conflicts among the owners, design professional and contractors are common arise, and continues to rise. It occur due to different parties wish to achieve certain interests, that they believed that it cannot be achieved in current state. Conflict firmly embedded in construction literature and is viewed as the starting point for the exploration of the disputes. Conflicts will lead to few situations; it may resolve through improvement in communication skill between the conflicted parties, it may be present in the forms of claims, or it may leads to disputes. As an example, a situation arises at site, eg work found to be defective. Contractor and owner should meet to discuss the problem and seek to reach immediate solution. Normally contractor will agreed to fix the defective work. If contractor do not response, the owner can rely on contract, i.e. sent a letter to the contractor asking him to comply. In situation where the contractor does not comply, the owner can hire other contractor to fix the defective work and deduct the cost from amount due to the contractor. In some situation, the contractor might claim that the defective work is due to bad design, not workmanship failure. When this arises, higher step of dispute resolution needed.

Complexity in the conflicts tends to raise new problems and eventually, all conflicts become a burden to the industry in terms of production. Common resolution to overcome this problem is using ADR. There are many cases regarding construction disputes in Malaysia and not much of cases have been settled. Normally dispute cases solve through mediation and conciliation which takes months to settle down with a numbers of hearings. There is also situation where both disputed parties that starts with negotiation and end up with no solution, go for mediations, but it still not resolving their disputes. At other alternative, they continue to chose higher ADR method, but at last the problems only settle by legal actions. The problems that lead to complexity in resolving the conflicts are because both parties do not exactly understand the conflicts that they are facing and the best resolution to settle the conflicts.

ADR method suppose to be the best solution in resolving dispute in construction industry. But by referring to the current situation nowadays, it is not as what it is expected. By using ADR method, the conflicted parties actually should able to cut any possible cost and time that may incur. The ADR method also should maintain good relationship between the owner, design professional and the contractor, thus not affecting the remaining work process.

Thus, a comprehensive methodology to understand the conflict decision making and conflict resolution is needed, to be used in negotiation state between the conflicted parties. The ubiquity of conflicts means that other support is needed within the decision makers, mediators or policy makers. This is to ensure that correct solution is chosen in order to eliminate or minimise all possible circumstances and then save money, time and stress involved in having deals with such problem. The potential of developing and adopting resolution techniques apart from existing methods such as Graph Model Conflict Resolution (GMCR) should not be undermine. What is GMCR? Is it common to the practitioners in Malaysia? How GMCR helps the resolution of disputes in construction? What would be the response of practitioners to the concept? A study need to be carried to address this issue.

1.3 Aim and Objectives

Addressing problems highlighted earlier, this study aims at exploring the potential application of Graph Model Conflict Resolution (GMCR) in dispute resolution in Malaysia. This model is used as effective tools for investigating and resolving construction conflicts in construction industry.

In order to achieve the desired aim, the following objectives have been set:

- 1.3.1 To study conflict, dispute, and the resolutions in construction.
- 1.3.2 To study and explore the application of Graph Model Conflict Resolution (GMCR).
- 1.3.3 To review the possibility of the potential application of GMCR in construction dispute in Malaysia.

1.4 **Scope of Study**

There are some previous theses regarding dispute resolution. However, they focus on the role of Arbitration (Omar Oseni, 2009), the comparative study of Dispute Resolution Board and Arbitration (Chu Hui Chen, 2008), the opportunities and challenges of Mediation as alternative dispute resolution (Goh Meng Kiang, 2004) and the use of procurement method as conflict and dispute reduction mechanism (Leong Shiang Chin, 2003). Despite a scarce study abroad, GMCR and its potential in dispute resolution in Malaysia has not been studied yet. In this study, the author will circulate on the application of GMCR for the purpose of modelling a conflict as a resolution method. It will be pointing the nature and complexity of conflict in construction industry and how to decide on the best dispute resolution to overcome the conflict.

1.5 **Brief Methodology**

Careful thought and planning in the preparation of the research methods, data collection techniques and measurements is very important for conducting research. The research will apply the following methodologies:

1.5.1 Literature Review

The research process for the whole study starts with literature review in order to formulate research problems, aims and objectives. The literature review will identify the conflict and dispute in construction industry and its resolution, and the study of GMCR. It will centered on books, online journals, magazines, reports, masters and doctoral degree theses. These sources are valuable as it gives the author a broad overview on the topic under studied. It follows with identifying appropriate research design aims to collect data for the study. Literature review will cover the definitions, causes, and sources of conflicts and disputes, dispute resolution methods, decision making process to choose the best resolution, the definitions, overview, and procedures of graph model, and the development and requirement of GMCR.

1.5.3 Questionnaire Survey

Questionnaire survey will also be applied to survey on the potential use of GMCR as conflict resolution. It will use the 5-point semantic scale as a method of measurement. Five (5) points will be apply for the questionnaire. The purposes of conducting the questionnaire survey is to collect data pertaining conflict, dispute and resolution in Malaysia. Besides that, questionnaire survey can be a medium to introduce respondents with brief definition of GMCR, and collect data pertaining on their preference in resolving the conflicts. Data gather from the questionnaire will help to review the possibility of the potential application of GMCR in construction dispute in Malaysia.

1.5.4 Conceptual framework of GMCR

The conceptual framework of GMCR system will refer to the original GMCR software published in the internet. The model can be easily refer as it can be viewed through normal computer, without any additional hardware requirement.

Detail explanations of the above mentioned research methodology will be presented in Chapter 4. Figure 1.1 briefly summarize the above process.

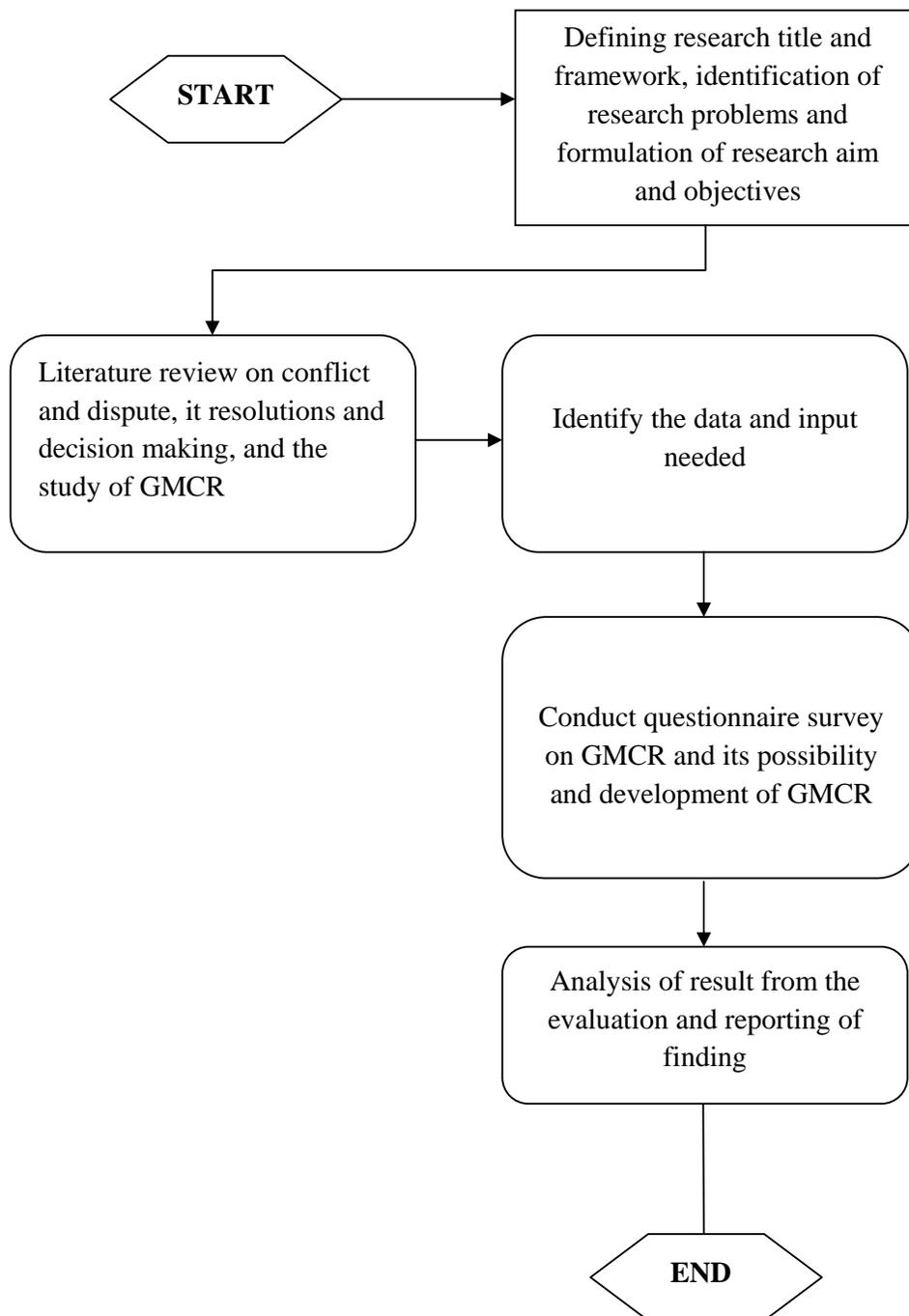


Figure 1.1: Summary of research process

1.6 Report Outline

The report is divided into six (6) chapters. The first chapter (Chapter 1) explains the problem statement, aim and objectives, scope of study and brief methodology that will be used throughout the study.

Chapter two (2) elaborates the literature review related to the study. At first stage, the author will explain conflict and dispute in construction industry, mainly between the owner and main contractor. Next, it covers the dispute resolution that normally chosen to settle those conflicts, and the most common method used.

The third chapter (Chapter 3) studies on GMCR, its concept and application, and explore how GMCR can be used in deciding the best solution to the conflict.

The fourth chapter (Chapter 4) explains the structure and description of the questionnaire survey. The questionnaire collects data on demographic background of all respondents as well as their feedback on the GMCR model.

Chapter 5 report the analysis of data gathered from the questionnaire survey.

Finally Chapter 6 concludes the overall research and suggests recommendation for future research.

This chapter covered the introduction to conflicts and disputes in the construction industry, and the conflicts and disputes normally resolved. Moreover it states the aim and objectives, scope of study , methodology used. This project is based on how to use new decision making technique i.e. graph model as an alternative to current dispute resolution. The results to be obtained from the study will determine the possibility of the graph model in resolving disputes between the owner of the project and the contractor.