

**MANAGING VARIATION ORDER IN MAJLIS AMANAH RAKYAT (MARA)  
PROJECT**

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## **ABSTRACT**

Construction industry is frequently related with variation order and the project holders have to believe that no construction method is free of variation. A document review was done for three (3) projects on building construction project in Majlis Amanah Rakyat ( MARA ) during the period of Eight Malaysian Plan from 2001-2005. The objectives of the study are to identify the causes of variation, the effect of variation on project performance and to identify strategies to minimize them. The method of this study involved literature review, document study, interview and questionnaire. Based on the literature review, there are eight root causes of variation are found to be design errors, client requirement, contractor proposed change, construction change, discrepancies between work and statutory, extra work, design change and plan deficiency. Meanwhile, the effect of variation order as found in the study are cost overruns, time overruns, professional relations, delay in payment, increase overhead expenses, procurement delay, additional payment for contractor, progress effected without any delay, poor safety condition, dispute among professionals and completion schedule delay.

## ABSTRAK

Industri pembinaan seringkali di kaitkan dengan perubahan kerja an ia seolah-olah sudah tidak dapat mengelak dari terlibat dengan sebarang perubahan kerja.Ulangkaji dokumentasi pembinaan telah di lakukan terhadap tiga (3) kajian kes pembinaan di Majlis Amanah Rakyat (MARA ) di dalam tempoh Rancangan Malaysia Kelapan iaitu dari Tahun 2001-2005.Objektif kajian ini adalah untuk mengenalpasti punca berlakunya perubahan kerja serta kesannya ke atas prestasi projek dan kaedah yang boleh digunapakai bagi mengurangkan berlakunya perubahan kerja.Kaedah yang terlibat di dalam kajian ini adalah merangkumi kajian kesusasteraan, dokumen pembelajaran, temuduga dan juga borang soal selidik .Hasil daripada analisis data yang diperolehi punca utama perubahan kerja adalah disebabkan oleh kesilapan rekabentuk, kehendak pelanggan, cadangan pertukaran oleh kontraktor, perubahan pembinaan, perselisihan di antara kerja dan undang-undang, pertambahan kerja, perubahan rekabentuk dan kekurangan pelan.Sementara itu, kesan perubahan kerja yang telah di kenalpasti di dalam kajian ini adalah sebagaimana berikut; peningkatan kos, peningkatan masa, hubungan profesional, kelewatan pembayaran, peningkatan perbelanjaan, kelewatan perolehan, pertambahan pembayaran kepada kontraktor, kesan peningkatan kerja tanpa melibatkan kelewatan, keadaan keselamatan yang tidak terjamin, pertikaian di antara professional dan kelewatan di dalam penjadualan.

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## CHAPTER I

### INTRODUCTION

#### 1.1 Introduction

Construction projects are complex because they involve many human and non-human factors and variables (Arain et al, 2004). They usually have long duration, various uncertainties, and complex relationship among the participant. To identify and analyze potential variations in a project as early as possible can enhance both the assessment and the implementation of the project (Ibbs et al, 2001).

Variation order involved additional, omission, alteration and substitution in term of quality, quantity and schedule of work. Without contractual clauses, the building contractor would have to agree the erect without any change the building shown on the drawings and represented in the bills for a contract sum (Segawa et al, 2002:89).

A variation becomes part of the contract and all the contract condition apply to the changed works, including provisions for extensions of time and site condition (if

applicable). Variations are common in all types of contraction projects (CII, 1994; Fisk, 1997, Ibbs Wong, & Kwak, 2001). The nature and frequency of variations occurrence vary from one project to another depending on various factors (CII. 1986; Kaming, Olomloaiye, Holt & Harris, 1997). Arian and Low (2005a) identified the design phase as the most likely area on which to focus to reduce the variation in future institutional project. Variations in construction project can cause substantial adjustment to the contract duration, total direct and indirect cost, or both (Ibbs, 1997; Ibbs, Lee & Li., 1998).

## **1.2 Problem Statement**

A variation may arise in construction in various ways. It arises more often during the progress of work and seldom before the commencement of the work. Variation in construction industry will lead the impact to all parties involved in this sector. The main implication of variation order is in term of time overrun and cost. Most of the variation occurs when major changes in the contract during construction works.

The fact is that variation orders are unwanted, but inevitable is reality in any construction project. The construction process can be influenced by changing variables and unpredictable factors that could result from different sources (Mokhtar et al, 2000).These sources include the performance of construction parties, resource availability, environmental condition, involvement of other parties and contractual relation. As a consequence of these sources, the construction of projects may face problems, which could cause delay in the project completion time (Arain et al, 2004).



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Variations are familiar in all types of construction project. Variations in construction project can cause substantial adjustment to the contract duration, total direct and indirect cost or both. Most of Majlis Amanah Rakyat (MARA) project were delayed with certain amount of variation order increasing from the original value of the contract sum. The implication of variation shows that, the total value of variation for three (3) projects would be RM 100 Million and the total number of variation works is around hundred (50) numbers. Most of the variations occur when major changes in contract during construction and additional works and the most frequent effects of variation were project cost and time overrun.

### **1.3 Aim and Objective**

The aim of this research is to study the sources of the variation order and to identify strategies to minimize them. To achieve the above aim the following objectives have been identified as follows:-

- i. To study the sources of variation order.
- ii. To determine the effect of variation order on project.
- iii. To identify strategies to minimize variation order.

#### **1.4 Scope of Study**

The scope of the study is focused on MARA Projects. Project reviewed during the time of the Eight Malaysian Plan from 2000 to 2005. This research will look at some project that involved in variation works. There are three (3) projects that have been selected in this research and the important of the study would be reflect on the total value of three (3) projects in the excess of RM 10 million. This research also consists of interview and questionnaire survey with the relevant professionals who are related to the topic.

#### **1.5 Brief Research Methodology**

The methodology is necessary to assist the compilation of data and information from various sources. It involved three main stages starting from collecting the data, analysis the data, conclusion and recommendation related to the topic. The method can be divided into three phase:-.

##### **i. Phase One**

Method used in conducting this research starting with literature review. The source of data obtained from the reading material such as books, magazine, article, journal, web site and other published information supporting the topic of variation order.

**ii. Phase Two**

This phase consists of preparing and collecting the data through document study, interview session, and questionnaires survey. Generally, data is collected from the professional parties who are involved directly in construction process. Analysis of data by using qualitative method is done through the document study of the Mara Project and secondary data generated from the questionnaire survey.

**iii. Phase Three**

This phase is to define the conclusion and recommendation with reference to the objective subsequent to the analysis from the document study, questionnaire survey and interview.

The process of research methodology can be summarized as figure 1.1 below. This figure shows the process of research methodology start from literature review until conclusion and recommendation.



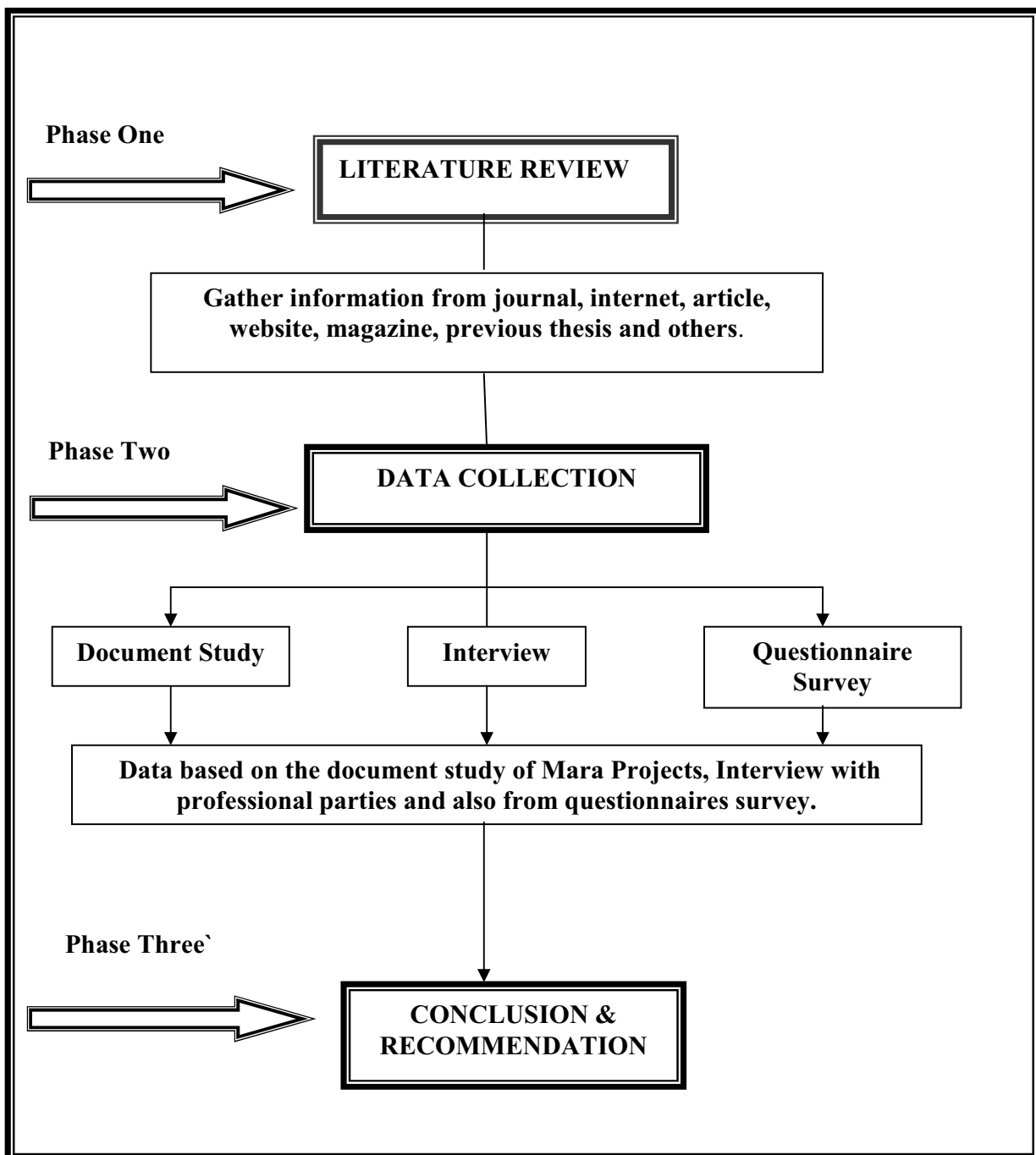


Figure 1.1: Research Methodology Chart

## **1.6 Significance of Findings**

As variation orders can have numerous negative effects on projects cost and schedule, this study is carried out to identified the major sources those contribute to variation orders and to study the effects of variation orders during the implementation of construction projects, which will be supportive for construction professionals in assessing and taking proactive measures for reducing the adverse impact of that. This study provides some valuable insight to the relative important of minimize or control the variation orders. The study consists of five chapters. The first chapter is introduction of the research, which includes the statement problem, the objective of study, scope of study and research methodology. The second chapter is on literature reviews, which focused on sources of variation orders and the potential effect of variation. Third chapter continue with research that discusses the method of research. Fourth chapter focused on data and analysis and lastly the conclusion and recommendation in chapter five.

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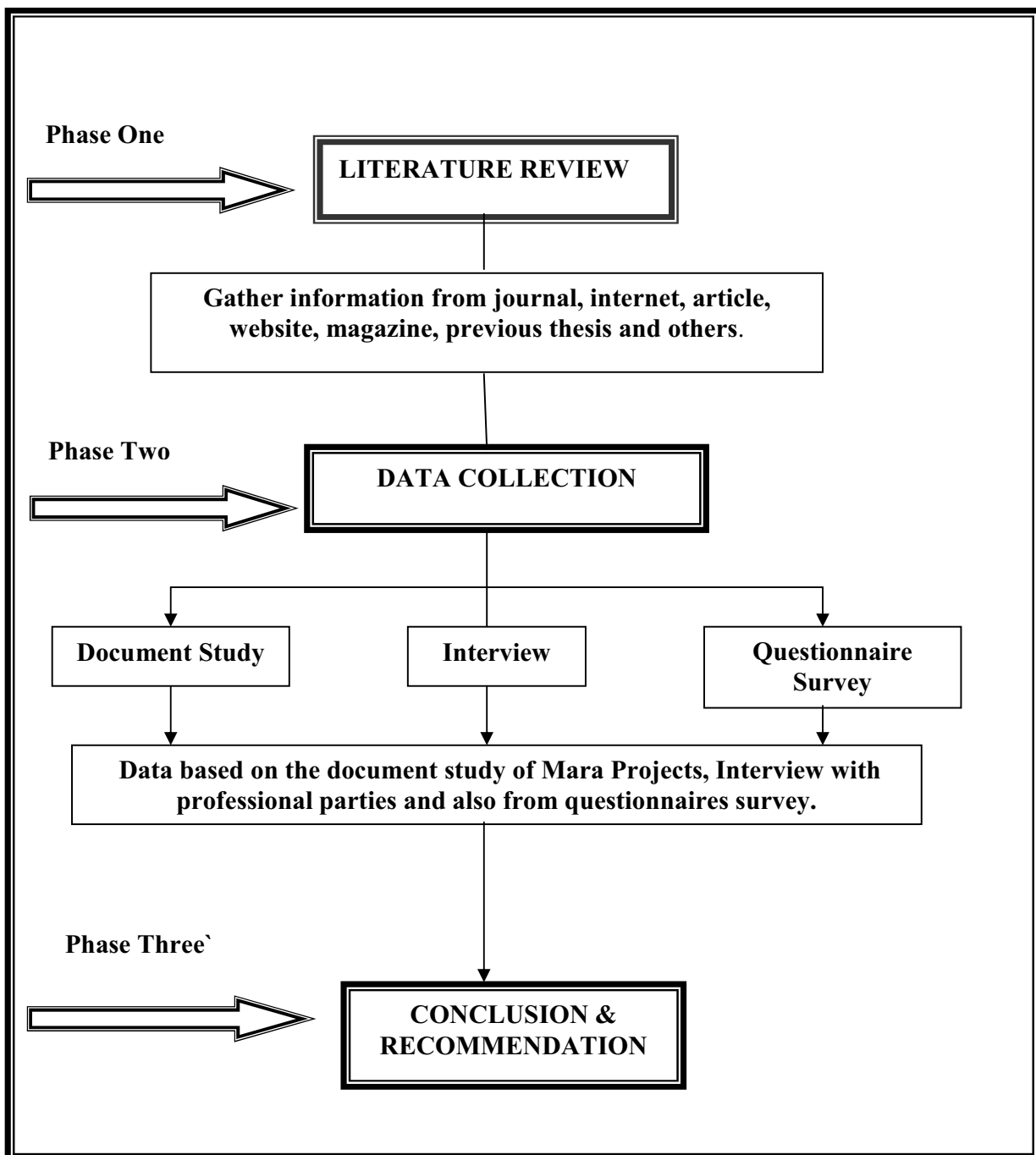


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