

IDENTIFICATION FACTOR OF
CONSTRAINT IN ROAD CONSTRUCTION IN
SABAH

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STUDENT'S DECLARATION

I hereby declare that the work in this thesis is based on my original work except for quotations and citations which have been duly acknowledged. I also declare that it has not been previously or concurrently submitted for any other degree at Universiti Malaysia Pahang or any other institutions.

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ABSTRAK

Kekangan dalam pembinaan jalan boleh didefinisikan sebagai sesuatu yang membatasi organisasi atau entiti daripada bergerak ke depan atau mencapai matlamat untuk menyempurnakan projek. Kekangan dalam situasi kerja yang melibatkan banyak pihak membawa komplikasi dalam pengurusan projek pembinaan jalan. Hal ini boleh menyebabkan berlakunya konflik dan pertikaian yang membawa akibat kepada kos, langsung dan tidak langsung kepada pelanggan dan kontraktor (Yates, 2002). Adalah penting untuk mengenal pasti kekangan yang berpotensi berlaku dalam projek pembinaan, yang akan membantu mengurangkan pembaziran yang tidak perlu dan kehilangan wang dan masa kerana perancangan yang tidak mencukupi. Oleh itu, matlamat utama dalam kajian ini adalah untuk mengenal pasti faktor-faktor kekangan dalam pembinaan jalan raya. Kajian ini menggunakan kaedah literature dan soal selidik untuk mendapatkan data. Berdasarkan kaedah literature, terdapat lima kategori yang menjadi penyebab utama kekangan dalam pembinaan jalan dikenali. Soal selidik telah diedarkan kepada responden secara rawak di Sabah yang terdiri daripada kumpulan pengurusan seperti pemaju, perunding, kontraktor, jurutera dan pengurus projek. Antara faktor paling penting yang menyumbang kepada faktor utama kekangan dalam pembinaan jalan raya ialah bajet terhad dan peruntukan duit untuk pembinaan tidak mencukupi, pengurusan syarikat yang lemah, dan turun naik harga. Kekangan sosial dan kekangan ekonomi menduduki kategori utama kekangan dalam pembinaan jalan, diikuti oleh kekangan undang-undang, kekangan teknikal dan kekangan persekitaran.

ABSTRACT

Constraint in road construction can be defined as anything that limits an organization or entity from moving toward or achieving its goal to accomplish the project. Constraints in a multi-party working situation bring complications in road construction project management. These can further develop into conflicts and disputes, which bring cost consequences, direct and indirect, to clients and contractor (Yates, 2002). It is important to identify the potential constraints in the construction project, which will help to decrease the unnecessary wastage and loss of both money and time because of inadequate planning. Therefore, the main goal of this study was to identify the factor of constraint in road construction. This study carried out based on literature review and questionnaire survey. A total of five categories were contributed to the main factor of constraint in road construction was identified based on literature review. A questionnaire survey was distributed to the randomly respondent in Sabah. The target respondent of questionnaire are developer, consultant, contractor, engineer and project manager. The top three most important factors that contributed to constraint in road construction were budget limit and allocation of the money for the construction not enough, poor company management, and price fluctuation. Social constraint and economic constraint were ranked the main categories of constraint in road construction, followed by legal constraint, technical constraint and environmental constraint.

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LIST OF ABBREVIATIONS

BIMP	Brunei Indonesia Malaysia Philipinnes
ASEAN	Association of Southeast Asian Nations
GDP	Gross Domestic Product
SDC	Sabah Development Corridor
BIMP	Brunei Indonesia Malaysia Philipinnes

CHAPTER 1

INTRODUCTION

1.1 Introduction

Road construction is an important construction as basic facilities and services needed for operation of a people in the uses of daily life. Moreover, it boosts local productivity and ingredient for the development of an economy. However, road construction is the challenging process which need the massive workforce, machinery and technical as well as financial capacity. Every construction project faces challenges during the implementation of a project. Such challenges arise from the presence of different constraints.

There are constraint in every working environment. The successful achievement of the project objective could be constrained by many factors. The performance of the project is measured by the degree to which how these constraint be overcome to meet project objectives. A good construction project lies in achieving the goal within a specific time, accomplishing technical performance, maintaining its schedule, and sticking to the budgetary cost of the project. Successful project are consider when its will completed on time, within the budget that given, with the great quality of construction.

Constraint can be defined as anything that limits an organization or entity from moving toward or achieving its goal. Every production system will have at least one constraint (Chua, Shen and Bok, 2003). Constraint describes the relationships between objects and processes (Whelton, Penneanen and Ballard 2004; Tam, 2006). It is whatever impedes progress toward an objective or a goal (McMullen 1998). Constraints may cause undesirable consequences or are not supportive of the organizational goals. It is the environment and the limitations of the system which dictates the solutions (Stein

1997). These constraints should be reduced or eliminated in order to minimize waste and make the flow more efficient.

Mcmullen (1998) categorized the constraints into two groups: the constraints with lesser impact and the ones with greater impact. He suggested that every situation contains many relative lower impact constraints but only a single or a few higher impact constraints. The higher impact constraints are called core problems or root causes. He suggested that as time is everyone's prime constraint, maintaining the focus of an individual or management on identifying and acting on the higher impact constraints will help using the scarce time effectively.

The constraints can be categorized into two types: (1) internal constraint and (2) external constraints. Internal constraints are inside the system and are usually more under control. This means that when the system cannot keep up with the demand, action needs to be taken to eliminate the constraint. But continuing such an action will in turn bring to a point where capacity exceeds demand and constraint exists in another form. Middle managers frequently encounter situations when a task is assigned by the top management with constraints. The middle managers then have to go over these constraints in order to complete the task. The consequence is that they may have to take more time or resources than what has been planned. If they face constraints that cannot be overcome, there is a possibility that they may have to do things outweighing their capability in order to accomplish the task. Some managers will have to take irregular actions such as illegal action, deceiving action, or force the others to comply without any redress. External constraints are outside the system and are less under control. This means that the system has slack capacity to handle external constraints and action taken can merely minimize the effect of undesirable consequence rather than breaking the constraints. However, constraints can never be permanently broken. They merely migrate from one place to another.

According to Selvester (2012), the problems associated with the construction works in Sabah are attributable to poor construction materials, lack of supervision, poor workmanship, and other factor related to client and contractor. According to Dayang Sabariah (2009), planning at early stage of construction is crucial to minimizing any major risk or difficulties during the execution of works, particularly in projects funded by the Government.

1.2 Problem Statement

Constraints bring complications in project management. These can further develop into conflicts and disputes, which bring cost consequences, direct and indirect, to clients and contractors (Yates, 2002). The project team members have to meet client's needs on one hand and to overcome constraints on the other hand. It is important to identify the potential constraints in the construction project, which will help to decrease the unnecessary wastage and loss of both money and time because of inadequate planning. Controlling the constraints is thus a pre-condition for high performance of the project.

Constraints have to be managed. Practically, in all cases the constraints' limiting impact can be reduced or eliminated. Constraints management contributes to two major project functions, planning and control (Chua et al. 2005). Planning functions emphasize developing optimal schedules using simple or complicated algorithms with the objective of fulfilling project goals such as duration, cost, and quality. Control functions are focused on both plan and implementation such as work assignment and resource allocation, and supply chain management such as material delivery and inventory control.

Identifying and removing constraints (Chua et al. 2003) from bottleneck activities help to reduce uncertainties in construction processes and increases the transparency of project management. Yates (2002) suggests that avoidance measures can be taken if they understand the cause of conflicts and disputes. They proposed a framework to identify the caustic factors of the conflict and disputes in the construction industry. By referring to the all statement above, it is important to conduct a study on constraint in road construction project to find out the key main factor for the constraint, the effect of constraint and what methods will be used to minimize constraint in the road construction. If constraint can be prevented, it will be a big help to the construction industry.

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