

A STUDY OF ROLES AND IMPACT OF PROJECT
MANAGEMENT CONSULTANCY IN
CONSTRUCTION PROJECT

NUR SYAHIDAH BINTI ABU BAKAR

B. ENG (HONS.) CIVIL ENGINEERING
UNIVERSITI MALAYSIA PAHANG

A STUDY OF ROLES AND IMPACT OF PROJECT MANAGEMENT
CONSULTANCY IN CONSTRUCTION PROJECT

NUR SYAHIDAH BINTI ABU BAKAR

Thesis submitted in fulfillment of the requirements for the award of the degree of
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I hereby declare that I have checked this thesis and in my opinion, this thesis is adequate in terms of scope and quality for the award of degree of Bachelor of Civil Engineering (Hons.).

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Position :

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ABSTRACT

This thesis is concerning on the role and effectiveness of Project Management Consultant (PMC) in Malaysia's construction industries. The objectives of this study is to identify the role of PMC and their effectiveness in managing construction projects. The thesis describes that there is misunderstanding about the general importance concepts in project management and the main objective that need to be achieved in management in the PMC's view. The lack of knowledge on the principles and techniques in project management also contribute to the problems already occurred. There are many parties that still confuse with the true meaning of the Project Management and Project Management Consultancy. The involvements of the Project Management Consultant in construction project often related to unsatisfaction and produce a low quality product of construction. This study focused on the scopes which is project management consultant firms that operates professionally, construction firms such as contractors, and individual professional such as civil engineers and project managers. When the objectives and scopes of study is set, then the data collection are made through two methods which is through literature review and a questionnaire survey. The data gained were then turned into results and analysis. From the analysis, the objectives of this study are achieved. This study has suggested roles need to be served by PMC and it found that PMC is very effective in managing construction project. The results of this study maybe able to correct the perception of PMC.

ABSTRAK

Tesis ini menekankan ke atas peranan dan keberkesanan Perunding Pengurusan Projek (PMC) dalam industri-industri pembinaan Malaysia. Objektif-objektif kajian ini adalah untuk mengenalpasti peranan PMC dan keberkesanan mereka dalam mengurus projek-projek pembinaan. Tesis ini menjelaskan bahawa terdapat fahaman yang salah tentang konsep-konsep penting umum dalam pengurusan projek dan objektif utama yang perlu dicapai dalam penurusan pada pandangan PMC. Kekurang, pengetahuan terhadap prinsip-prinsip dan teknik-teknik dalam pengurusan projek juga menyumbang kepada permasalahan yang telah sedia ada. Terdapat banyak pihak yang masih keliru dengan erti sebenar Pengurusan Projek dan Perunding Pengurusan Projek. Penglibatan Perunding Pengurusan Projek dalam projek pembinaan selalu dikaitkan kepada ketidakpuasan dan menghasilkan produk pembinaan yang berkualiti rendah. Kajian ini menumpukan ke atas skop-skop iaitu firma-firma perunding pengurusan projek yang beroperasi secara professional, firma-firma pembinaan seperti firma kontraktor, dan individu professional seperti jurutera-jurutera awam dan pengurus-pengurus projek. Apabila objektif-objektif an skop-skop telah ditetapkan, kemudian pengumpulan data dibuat melalui dua kaedah iaitu melalui tinjauan literasi dan penyelidikan borang pertanyaan. Data yang dikumpulkan ditukar kepada keputusan dan analisa. Daripada analisa, objektif-objektif kajian ini telah dicapai Kajian ini mencadangkan beberapa peranan yang perlu disediakan oleh PMC dan telah mendapati PMC amat berkesan dalam mengurus projek pembinaan. Keputusan-keputusan kajian ini mungkin dapat membetulkan pandangan terhadap PMC.

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CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

The term traditional work process can be literally understood as the common practice inherited from the long established custom of delivering the construction project based on fragmented work process. In general this practiced has dominated the industry with the separation of design and construction function. In the fields of architecture and civil engineering, construction is a process that consists of the building or assembling of infrastructure. Far from being a single activity, large scale construction is a feat of multitasking. Normally the job is managed by the project manager and supervised by the construction manager, design engineer, construction engineer or project architect. Efficiency in management is needed to gain a higher level in competitiveness.

Project Management Consultancy (PMC) is one of the management solutions to improve the efficiency of a project in construction. The use of these services has been increased construction industry around the world. Even though the practice of using PMC services is quite new in Malaysia, more widely applied only after Malaysia had successfully completed the PETRONAS Twin Tower Project and the KL International Airport (KLIA Project), there are more than 100 private companies of various sizes and track records registered under the Treasury that have procured Project Management Consultancy (PMC) services since 1999 (Dzulkarnaen, 2005).

The question is whether the services provide by PMC is adequate in ensuring that projects are completed accordingly within the budget or cheaper, are high quality and meet the client needs. Hence, this study was carried out to investigate the services that are currently and should be provided by Project Management Consultants (PMC) in the Malaysian construction industry as well as to measure the level of satisfaction which is the effectiveness of the services provided by Project Management Consultant in the construction industry.

1.2 BACKGROUND OF PROBLEM

Most individual companies and organizations, which require the Project Management Consultancy services, do not have enough resources and expertise to carry the role of PMC. By considering these factors, the government of Malaysia under the Ministry of Finance had entrusted the Project Management Consultant (PMC) to manage government projects with the intention that these projects are completed efficiently on time, within budget and of the specified quality.

However, the government's good intention to obtain services provided by Project Management Consultants has recently raised several issues and problem that are discussed by the public and government. From the issues of computer labs and 16 "sick" schools and five community colleges with structural defects, the closing of Sultan Ismail Hospital in Johor Bharu due to fungal outbreak caused by faulty air conditioning and the latest issue where the key Middle Ring Road in Kuala Lumpur had to be closed after cracks were found (Dzulkarnaen Ismail, 2005).

The Board of Bintulu Port should act against a consultant for changes made to construction plans which caused delays in completing its one-stop administration centre, said the 2005 Auditor-General's report. It said the delays should also not have occurred if the contractor for the job had the financial capability to manage the project. An audit checked showed that the contractor had cash flow and labor problems. The report said as of

October 2005, 61 directives for changes to be made to the building which raised the cost by RM4.85mil (THE STAR, 2006).

Vice President of Persatuan Kontraktor Melayu Malaysia (PKMM), Datuk Muhammad Muhiyudin said that the overload works and projects given to the consultants and contractors also bring delays to certain projects (BERNAMA. 2001)

Without PMC to vet and comment on their designs, mistakes go unchecked and the client is short changed. There is no strategic, effective and efficient and knowledgeable project leader to set and monitor and control high standards in design parameters and construction. The net result is chaos and non-performance of the project team and surely, the project will suffer massive project delay, time and cost overrun and poor quality in design and construction and is sure recipe for project failure. Yet appointing the wrong guys for the job is sure recipe for the project failure.

1.3 PROBLEM STATEMENT

Among the problems that occur in the construction industry in Project Management Consultancy view, is the misunderstanding about the general importance concepts in project management and the main objectives that need to be achieved in management. By considering these factors, the government of Malaysia under the Ministry of Finance had entrusted the Project Management Consultant (PMC) to manage government projects with the intention that these projects are completed efficiently on time, within budget and of the specified quality. Besides, the lack of knowledge on the principles and techniques in project management also contribute to the problems already occurred. There are many parties that still confuse with the true mean of the Project Management and Project Management Consultancy. A project without Project Management Consultancy (PMC) is like “a ship without captain” (Andrew A.L Tan, 2004). In the absence of “watch dog” the design consultants will submit mediocre and interior and nonfunctional designs and drawings resulting in difficulty in construction leading to project delays and extra cost and poor aesthetic.

The service of Project Management Consultancy (PMC) was no longer been used by the government after some issues such as the failure of Highland Tower. According Andrew A.L Tan, corporate leader, project director and PMCs is the key responsible for project success or failures. This means that, if a certain project is fail or success, it was not because of PMC alone. Some of the issues that been talked about the services of consultant firms are the delays that seldom happens and over budget situations. Therefore, it is important to define what exactly is PMC, the importance of PMCs services and what are the services that they provide, so that their scope of work are clear in order to avoid misunderstanding on their services on future and to change the fact that the failure of a project is not fully the PMCs fault.

1.4 OBJECTIVES OF STUDY

The objectives of this study are as follows:

- I. To study the need of Project Management Consultancy (PMC)
- II. To identify what are the roles and responsibilities of PMC
- III. To identify the effectiveness of PMC Services

1.5 SCOPE OF STUDY

This study was carried out based on the literature review, and data collected by the given questionnaires to certain consultants and Construction Company that has been selected. The study is limited to Project Management of construction and infrastructure project undertaken by Project Management Consultant in Malaysia.

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

Project Management Consultancy (PMC) is one of the management solutions to improve the efficiency of a project in construction. The use of these services has been increased construction industry around the world. Many companies have invested a lot of effort into training project managers to employ this approach. Some have achieved a more efficient way of completing projects; others have not been able to integrate project management into a project to successful level. Some organizations had to use the capability of others who offer the Project Management Consultancy (PMC) services in order to accomplish their goals and objectives.

This chapter presents the background Project Management Consultants by defining the meaning of consultant in order to clarify any misunderstanding the services provided by the PMCs. The discussion also recovered the responsibilities of PMC and some issues that evolve PMCs.

2.2 DEFINITIONS OF PROJECT

A “Project” can be defined loosely as an item of work which requires planning, organizing and dedicating resources and expenditure funds, in order to produce a concept, a product, or a plant (James and Albert, 1994).

A project is a finite endeavor (having specific start and completion dates) undertaken to create a unique product or service which brings about beneficial change or added value. This finite characteristic of projects stands in sharp contrast to processes, or operations, which are permanent or semi-permanent functional work to repetitively produce the same product or service. In practice, the management of these two systems is often found to be quite different, and as such requires the development of distinct technical skills and the adoption of separate management (Wikipedia, 2009)

According to James and Albert, 1994, a project can be defined as an item of work that required planning, organizing and dedicating resources and expenditure funds, in order to produce a concept, a product or a plant.

On the other hand, Dhillon (2002) define project as a plan of work or assignment, which is also referred as a task or a job. Harold (2003) also defined project as any series of activities and task that have a specific objective to be completed within certain specification, have defined start and end dates, have funding limits, consume human and non-human resources and are multifunctional.

2.3 DEFINITION OF PROJECT MANAGEMENT

Project management as the art of directing and coordinating material and human resource by throughout the project life span by utilizing various management methods and techniques to achieve effectively predetermined goal of scope, quality, time, and cost and participation satisfaction (Dhillon, 2002)

Project Management also defined as the systematic application of management and construction expertise-through planning, design and construction processes-for the purpose of controlling the time, cost and quality of design and construction. Although the success of a project is influenced by a variety of factors, in practically all cases, successful project management will improved project quality while helping to maintain project budget and scope (Kuprenas,et al, 1999).

Project Management is defined as the process by which the appointed Project Management Consultancy (PMC) or Project Manager such as plan, organize, schedule, implement, manage, monitor, control, track, solve problems, make decisions, lead, inspire and motivate the entire project consortium team involve in a project that consume resources (time, people, space, money, computers, machineries, plants, landscaping, materials, internet, knowledge-based experts, etc) in order to achieve set and stipulated project objectives and deliverables usually in terms of but not limited to primary triple objectives of time, cost and quality and secondary objectives of promoting shareholders, stakeholders and company's interest and tertiary objectives of excellence in all aspects of design, finance and construction while enhancing the aesthetic of the built environment and taking care of client's interests in terms of functional and financial definitions, end-users well-being and social and moral obligations to society, community, nation-building and the world (Andrew A.L Tan, 2004).

With the various definition of project management available, the definition used for the purpose of this research is the one defined by Walker (2002: 5), "Project management as the planning, co-ordination and control of a project from conception to completion (including commissioning) on behalf of a client requiring the identification of the client's objectives in terms of utility, function, quality, time and cost, and the establishment of relationships between resources, integrating, monitoring and controlling the contributors to the projects and their output, and evaluating and selecting alternatives in pursuit of the client's satisfaction with the project outcome".

2.4 DEFINITION OF PROJECT MANAGEMENT CONSULTANCY

There is no specific definition of project consultant. Most definition described management consultant by their roles and responsibility and services that they provide using tools and skills they have in delivering a task assigned by the client or the owner of the project (Dzulkarnaen, 2005).

Unfortunately, there is some confusion with the terms used to describe “consultant”. Stallworthy and Kharbanda (1985) observed that there is a similar confusion between contractors and consultants. Some contractors do consulting work, whilst some consultants also act as contractors. This is not a desirable development, since the consultant/contractor has a vested interest, with the result the owner, who finally has to pay for it all, may well suffer. Smith (2001), in a paper titled “What client employees say about consultant” states that organizations use consultants to help accomplish significant goals, such as facilitating organization change. Consultants may be hired to advise or design the plan for change, but they are often not asked to participate in the implementation of their designs. Consultation is happening if the clients seek expert knowledge or some opinions on some engineering problems or anything that involves engineering matters. Consultation maybe brief or extended which some involve only few hours of time, with the clients sitting across the desk of the consultant. Other consultation may require traveling, some period a substantial portion of a consultant’s time over a period of several months, and repeated presentations and discussions with the client (Maxwell, 1982).

Management consulting is an advisory service contracted for and provided to organizations by specially trained and qualified persons who assist, in an objective and independent manner the client organization to identify problems, analyze such problems, and recommend solutions to these problems and help, when requested, in the implementation of solutions. (L Greiner and R Metzger, 1983)

In context of the Malaysian scenario, Project Management Consultant can be described as a group of professionals formed to manage a project from the start to its completion stage. For government projects, these groups of professionals such as engineers, architect, quantity surveyors and accountants who work under one project management

team will take the role of Project Work Department (PWD) in order to manage as well as to deliver the project accordingly. Therefore, the appropriate definition of Project Management Consultant (PMC) is best described by its role and responsibility to the client which will be discussed in next section on project management roles and responsibility.

2.5 ROLES AND RESPONSIBILITIES OF PROJECT MANAGEMENT CONSULTANCY

A project comprises a complex and complicated host of activities with specific objectives. Therefore the role of the Project manager as the Project Leader is often complex as well (Andrew, 1996). The roles and duties of a project manager according to CIOB (2002) will vary depending on the client's expertise and requirements, the nature of the project, the timing of the appointment and similar factors. This is similar to Philip's (2000) view which state that the Project manager's role and scope of duties can be structured to suit the individual needs of a particular client.

Project Management Consultancy (PMC) that been selected is basically to produce a product by considering the technical specification, cost and timetable by using the existing organization sources. PMC also responsible in making decision to ensure all the objectives of the project has been reached.

Kuprenas et all (1999) identifies the role and responsibility of a project manager as carrying out the project management method of project delivery being implemented at the City of Los Angeles Bureau of Engineering. From his study it was found that, The Project Manager has a responsibility to see that a project gets completed within the specified scope, quality, budget, and schedule but is not responsible for specific (design) activities that are necessary to produce a finished project. The Bureau calls this a "single-hat" Project Manager. The Project Manager ensures from the outset that expectations, roles, and responsibilities are established through formalized specific project agreements (called handshake agreements) in which all stakeholders and service providers commit to project

scope, budgets, and schedules for their various components of project delivery. These formalized agreements become the commitment of the functional staff.

In the building and construction sector, the project manager plays various roles which cover aspects such as planning, leading, organizing, guiding, coordinating, complementing, supplementing, controlling, supervising, motivating, inspiring, monitoring the activities of the entire project consortium team of consultant and contractors. The objective is of course to achieve set and stipulated corporate visions, policies, goals and project objectives; (Andrew, 1996).

Edwin (1984) in his research which investigated the use of project management for four public sector clients found that the project manager's role was seen as that of a liaison officer interfacing between the client and the rest of the contributors to the project with the primary role to ensure that the project was systematically planned and built within agreed cost, programmed time and specified quality standards.

Whatever the project manager's specific duties in relation to the various stages of project are, there is the continuous duty of exercising control of project time, cost and performance (CIOB, 2002). Figure 2.0 is an illustration produced by CIOB (1988) which demonstrates in general terms the pivotal role of project management in representing the clients in his relationship with the design and construction organizations.



Figure 2.1: Role of Project Management in representing the client

The role of Project Management Consultancy (PMC) is to achieve corporate goals and project objectives. His primary role is to lead, guide, coordinate and synchronize the professional inputs from various specialist consultants. It is also includes monitoring, controlling, solving problems, conflicts management and making decisions. His role is multi-disciplinary and his responsibility is to synthesize and integrate all the aspects of a project into a cohesive whole. The PM role is to lead, guide, steer, inspire, and motivate his entire project team and to marshal all necessary resources to implement and manage tasks and activities in order to achieve milestones and project deliverables, usually in terms of time cost and quality in order to ensure project success, avoid or reduce project failure altogether (Andrew A.L Tan, 2004).

2.6 SERVICES PROVIDED BY PROJECT MANAGEMENT CONSULTANCY

Project management services are not a substitute for top management's own reporting structure. They are the independent sources of objective information that prudent management demands from a situation involving risk (Philips, 2000). The need for the use of consultancy services which are usually sought by Government agencies. The reason for the use is that no organization should gear as to be able to cater for peak volume of work (Inderjit, 1979). Thus, following sound management practice the spill over work is transmitted to the professional in the private sector; and the works are of specialized nature for which the expertise is not available within the department.

Maloney (2002) added that in addition to satisfaction, an issue of major concern to the customer is service quality, which may be defined as the customer's overall impression of the relative inferiority or superiority of the organization and its services. Most customers want superior service quality, but at the same time they want the lowest price. The combination of service quality and the price paid for that quality is the value received by the customer.

In line with Philip's (2000) views, CIOB in 1988 clarified that the intention of the appointment of a Project Manager is to relieve the client of responsibility of providing an organization to deal with the design and construction of the project. The client retains the degree of control necessary for him to satisfy his wishes and preferences and will be required to make key decisions. There are five stages which require the services of Project Management Consultant (PMC): initial stages with the client, feasibility stage, pre-construction phase, construction phase and completion stage as listed by Chartered Institute of Building in 1988. (Refer to table 2.1)

Table 2.1: Services provided by Project Management Consultant (PMC)

INCEPTION PHASE/ PRE-CONSTRUCTION PHASE		CONSTRUCTION PHASE	COMPLETION PHASE/ POST-CONSTRUCTION PHASE
<i>PHASE 1 Conceptual Phase</i>	<i>PHASE 2 Planning Phase</i>	<i>PHASE 3 Execution Phase</i>	<i>PHASE 4 Termination</i>
<ul style="list-style-type: none"> • Determine that a project is needed 	<ul style="list-style-type: none"> • Define the project organization approach 	<ul style="list-style-type: none"> • Perform the work of the project (i.e., design, construction, production, site activation, testing, delivery, etc.) 	<ul style="list-style-type: none"> • Assist in transfer of project product
<ul style="list-style-type: none"> • Establish goals 	<ul style="list-style-type: none"> • Define project targets. 		<ul style="list-style-type: none"> • Transfer human and nonhuman resources to other organizations
<ul style="list-style-type: none"> • Estimate the resources that the organization is willing to commit 	<ul style="list-style-type: none"> • Prepare the schedule for execution phase. 		<ul style="list-style-type: none"> • Transfer or complete commitments
<ul style="list-style-type: none"> • 'Sell' the organization on the need for a project approach 	<ul style="list-style-type: none"> • Define and allocate tasks and resources 		<ul style="list-style-type: none"> • Terminate project
<ul style="list-style-type: none"> • Make key personnel appointments 	<ul style="list-style-type: none"> • Build the project team. 		<ul style="list-style-type: none"> • Reward personnel

2.7 THE ROLE OF PROJECT MANAGEMENT CONSULTANT IN PRIVATE CONCEPT IN MALAYSIA

The concept of privatization is defined as transferring activities and functions of public sector or government into private sector. This is including making part of government position into private company. In project management, the concept of project privatization is referred to the privatization or the delivery method of the government projects to a company or concession to implement it such as Projek Lebuhraya Utara Selatan (PLUS). The delivery methods include Management Contract, Build-Operate Transfer, Build-Operate Own, Build and Operate, Build and Transfer, and Build-Operate-Own and Transfer. The delivery of the project not only concern on the increase of service and materials, but also the process where the source and usage of modern and sophisticated technologies, the increment of skill and expertise are among the importance term and condition.

A project management consultant is best appointed to lead the entire design and construction team. There are two versions of such a system of procurement. In the local version of turnkey design and build, most bidders are required to submit their design proposals together with cost and method of financing construction. In certain design and build arrangement, the client will have a design team who conceptualizes the overall design concept that is fixed. In this case, the bidders merely have to submit their cost proposal. Once contract is awarded, the successful can implement the project almost immediately and proceed with detail developed drawings and specifications writing. For certain prestigious project like KLIA, this was the practice. In the concept of land properties and consultancy service, the ISO 9000 Certification accreditation board alongside with the Construction Industry Development Board (CIDB) has stated that the concept of privatization is more effective in increasing the productivity value either in the aspect of time or process. In project management and consultancy, the concept of overall project management are important to proof the successful in any project field and as one of the term and condition to achieve the mission and objective of the privatization. (Andrew A.L. Tan, 1996)

2.8 EFFECTIVENESS OF PROJECT MANAGEMENT CONSULTANT IN MANAGING A CONSTRUCTION PROJECT

As stated earlier in this study, the project management consultant plays an important role in ensuring the effectiveness of project management for the construction project. In this case, the scope, time, cost and quality factor are prominent. All of these aspects will be the core for the project management. This is because project management alone is no guarantee for project success. For example, the Sydney Opera House is a classic example of project management success in terms of architectural design excellence yet it is classic project failure in terms of time and cost over-run. The French-British Chunnel is classic engineering feat, yet financially its viability and implementation have been seriously questioned. Thus, the effectiveness of project management consultant leads to the success of both the project success and project management success.(Andrew A.L. Tan, 2004)

2.8.1 Scope management

The determination and definition of scope of a particular project is one of the most difficult but also most importance stages in project management. Basically it is answering the questions 'What is this project which about to undertake? What is included and excluded? What standard performance is required?'. In determining the scope of a project, a project management should run a feasibility study. These usually form the first stage of the design process. In the case of a small project, it is likely that only one design solution will be proposed, and provided that is acceptable that solution will be refined to become the adopted design.

On a large project, it is possible that several different outlines are drawn up and comparisons made between them, in term of cost, feasibility, durability and general appearance. Before moving to the next stages of construction, the project management consultant will select one ofthe alternatives that are necessary to take the decision on whether or not to proceed at all, and this is likely to be done with the agreement from the client for the particular project. This show that an effective project management consultant will need the ability to adopt the components in the scope management of a construction

project such as project definition, project budgeting, project planning, project scheduling, project tracking, project control and project closed-out. (Andrew A.L. Tan, 2004)

2.8.2 Time management

The duration of the whole construction starting from the first phase till the completion is very crucial. The ability of planning the activities of the construction is very important in order to avoid the delay of the completion. This is because any delay that occurs during any phase of the construction will give a big impact to all the parties involved in the project including the client. Thus, hiring the project management consultant is the best way to prevent the financial loss due to the delay.

Project management consultant with the expertise of the management of time will organize and plan the best possible schedules for the project progress. The ability of project management consultant in estimating the activity duration and forecasting the activity will make the progress of the project goes smoother. The usages of milestone planning by the project management consultant contribute to the time efficiency of the project. By using the milestone and conducting milestone planning, result oriented thinking takes the place of activity-oriented thinking. It covers the end-results as well as the intermediate results. It is a logical sequence of arranging, various important tasks that need to be achieved. As it is impossible to visualize all activities at the beginning stage of the project, milestone planning has an advantage over activity planning. Furthermore, the implementation of 'Fast Tracking', which is a technique to compress and shorten the time required for each project activity and overall project time, primarily in decision making, design, approval and construction will lead into the saving of time. This means that an effective project management consultant can decrease or prevent suffer in financial loss of a project. (Andrew A.L. Tan, 2004)

2.8.3 Cost management

Throughout the construction industry, there has been a very strong tendency to measure everything in terms of cost. Thus, the wise controlling of total project cost is very prominent. Cost that has been spent during a certain construction project also will measure the progress of the construction itself. Cost managing is a part of project management consultant role. The efficiency of the project which is defined as measuring and comparing the percentage of management cost with total project cost is depend on the effective management of the project management consultant. The cost and project duration are two things that related and depend to each other. For example, if a project is really needed at earliest possible time then it would be expected that it will be operated 24-hour day schedule, with enough manpower available, and stand-by equipment to cover for any plant breakdowns. This can be done but will consume additional cost of overtime work and surplus labor and equipment.

One more thing that needs a concern from project management consultant is the project total cost. If the project appears to exceed the funds that can be made available for it, then the project management consultant will reduce or modified the scope of work in some way. This shows that project management consultant will lead the project according to the cost estimated to avoid cost over-run of the project that sure end up with the financial loss for many parties involved. Not forgetting the individual item cost, the consultant will try to get the best possible individual item cost to prevent the wastage to the project. In fact, many project managers are only involved with the client's interest cost without the client/contractor relationship. Instead of cost and time, there is one more aspect that relate to both of those aspect which measure the project success, the quality of the project itself. (Andrew A.L. Tan,2004)

2.8.4 Quality management

A project can be defined as a failure in its management if the cost and duration of the project meet the goals specified but the quality of the construction are at the bad condition. The quality of the project must be monitor in every phase of construction so that it will fulfill the standard specification predicted by the client. (Andrew A.L.Tan, 2004).

Given that true project management can cover the whole of a project's life from concept to commissioning'; it is the responsibility of the project manager or project management consultant to ensure that the quality of management system is appropriate to the project. To do this they must perform the following duties:

- I. Instill quality concepts in all who are concerned with the project, including the client.
- II. Set up quality procedures for purchases, i.e. materials and components.
- III. Undertake training programs for designers, and carry out design-audit.
- IV. Provide training in quality procedures for site managers and other supervisors.
- V. Seek ways of relating payment to all aspects of performance, in particular quality as well as speed.
- VI. Ensure that the work program itself is of high quality, make efficient and effective use of resources, and has been well thought out, questioned and discussed by all concerned. Having a good initial program is only part of the approach; it is essential to ensure that as work on the project advances the program is used to aid the control process and is itself kept up to date with the work. It is also valuable to carry out project audits from time to time, preferable at significant project stages rather than simply at arbitrary calendar interval.
- VII. Remember that time, cost and quality are all interact. It is not possible to have the shortest construction time, lower cost, and highest quality at the same time, and decisions must be taken at the outset of the project. (John Frank Woodward (1997)

In some case, project management consultants use their professionalism reputation to achieve that purpose. The project management consultant who has the overall power in

the project managed by them will take this advantage to ensure that all the project planning and implementation run smoothly without any interference.

The power to make a decision is very important for project management consultant to do their role effectively and this contribute to the effectiveness of the project management itself. In using the power entrusted for them as the source of their influence in project effectiveness, this power should be used with very caution and suitable and support from the higher management and client also important.

2.9 IDEAL PROJECT MANAGER

In our country, PMCs or project managers come in various professional disciplines yet none is the "ideal top-flight project manager" par excellence. It is a tall order to locate such a person, who is highly effective and efficient in managing projects for success. Can we find such a person who has a continuous, successful track record of successfully handling innumerable projects? This is because the project management profession is so demanding. At the same time, the definition of a project success goes beyond mere time, cost and quality. (Andrew A.L. Tan, 2004)

The criteria of such an "ideal" project manager can be summarized but not limited to the following:

- I. Self-assured leader
- II. Focused on result
- III. Energy and initiative
- IV. Problem-solving ability
- V. Communication ability
- VI. Negotiation ability
- VII. Coordinating and integrative ability
- VIII. Perspective - the helicopter mind

The ideal project management consultant is the person who has many qualifications and expertise in architectural, civil engineering, mechanical structure, electrical, quantity survey, town planning, interior design, landscaping, financing, personal management, traffic engineering and many other expertise related to construction directly or indirectly. If client need all the experts to be involved in order to complete his project, it sure consume a lot of additional cost for the project. Thus, by appointing the project management consultant , will save the cost of the project and will directly help the management of the construction. Project management consultant have many professional member comes from many diciplines and expertise and this consultant will help the client in managing the project. Client will then pay the consultation fee to the consultant according to their agreement. (Andrew.A.L. Tan,2004)

2.10 GOVERMENT PROFESSIONAL REGISTRATION OF THE PROJECT MANAGEMENT CONSULTANT

While anybody involved in the planning and implementation of the project, not necessarily in development and construction can call him as a project manager without having be certified and registered by a governing professional body, that of the project management consultant are different. For the private sertor jobs, anyone can call him a project management consultant , even if he is a one-man institution. However, for complex and complicated goverment project involving milions Ringgit, only suitable qualified and experienced companies can be registered as project management consultant in public sector. They m,ust have the right expertise and professional knowledge with the proven track record.

There are many professional criteria for registration as project management for government.

- I. The firm must have a project team comprising of a qualified, competent and experienced project director (technical), project planner, project manager, engineers (C&S, M&E), site manager, QA/QC technician, QS/Contract Manager, project scheduler, system analyst, architect and back up staff in finance, accounting etc but the resources requirement will vary depending on the nature of contract to be tendered.
- II. The firm must have a proven track record of successfully managed relevant or similar projects.
- III. The organizational chart and set-up of its entire intra-department and human resources must satisfy the criteria for registration.
- IV. The equipment and project management software such as Microsoft Project 2010 and Primavera Project Planner, Internet Project Management Software, office software solutions for the cash-flow planning, digital camera for recording site progress and a whole range of ancillaries for modern day project project planning, scheduling and implementation are part of the criteria for registration.
- V. Nature of company; authorized and paid up capital, CV/Resume of the board of directors and the entire project team.
- VI. References from previous clients, design team and contractors.
- VII. Professional and credibility of the firm and its project team.
- VIII. Knowledge and experience.
- IX. Project Office Ambience
- X. Others. (Andrew A.L. Tan,2004)

Just like Contractor Service Centre, Public Work Department and Construction Industry Development Board, it would be advisable if the project management consultant are graded accordingly into grade A, B, C, D and E and be allowed to tender for certain jobs nature.

CHAPTER 3

METHODOLOGY

3.1 INTRODUCTION

The research methodology in this chapter serves as a guide to the author in achieving the objectives and scopes of the study. This chapter shall further discuss in detail the research procedures, from how the data is collected till how it is processed and analyzed to achieve the objectives and scopes of the study.

3.2 IDENTIFICATION OF RESEARCH TOPIC AND SCOPE OF STUDY

In this stage, it involves the identification and further understanding of the research topic, which consists of problem statement, aim, objectives and scope of studies. Literature review has been done based on several references, from electronic journals, books, magazines, articles and others to further enhance the understanding on the project topic.

Literature review is an essential stage in conducting a research project. It amounts on average to between 20 to 25 percent of a study content, although certain study contents may require up to 50 percent of the content Naoum (1998). Various means of gathering relevant information were undertaken using textbooks, articles, newspaper and internet. The information searched was regarding overview of Project Management Consultant (PMC), the roles and responsibilities of PMC and methodology on improving the efficiency or effectiveness of PMC which are very useful for this study. Literature review takes a

while to get to grips with as it deals with work of others. In order to complete literature review within the time given, a schedule was prepared and followed. However, on-going literature review was also carried out to gather more knowledge and relevant data and to ensure continuous improvement in quality of work.

In this study the literature search was done by referring to sources of information from books, journal and other publications. The literature aim was done to gather information related to research topic. Chapter two is dedicated to compile the information from the literature search done for this study.

3.3 DATA COLLECTION

Data collection is an essential aspect of the research methodology, where it involves ways to collect data and information for data analysis and interpretation. Basically the author conducted the data collection by using questionnaire survey.

3.3.1 Questionnaire Survey

Before questionnaires can be developed, the main objectives should be outlined and well understood. The questionnaire derived shall be in line with the aim to achieve the objective stated earlier. Draft questionnaire was prepared and discussed with supervisor. Improvements and alterations were made to ensure that the questionnaires were developed in a comprehensive manner to achieve accuracy of answers from respondents.

The questionnaire is meant to evaluate on the issues related problems and limitations occur in construction process based on literature review and last interview session. As the interview session, this questionnaire was design to support the answer from the interview by additional problems and limitation from literature review. The questionnaire also was designed to determine the roles and responsibility of PMC as per second objective of this study.

I. Section A

This section is mainly to obtain information on interviewee personal background such as name, company address, age, positions, experience in the industry and academic qualification. Interviewees selected were personnel from construction industry. They were project manager, consultant project management (PMC), engineer, and quantity surveyor and building surveyor.

II. Section B

The aim of this section is to seek the correspondent perception regarding PMC. To achieve aim for this section, there were three (3) parts had been categorized as below:-

- i. First Part is to seek the roles and responsibilities of PMC
- ii. Second part is indicate the services of PMC
- iii. Third part is to find out how effective the PMC to construction work process.
- iv. Last part is need the value of construction project to the customer and how it satisfy and meet the customer/end user expectation

III. Section C

In this chapter, the aim is to seek correspondent perception on strategies that have been used so far to improve services of PMC. The strategies and method listed in this questionnaire were based on the literature review and from the past interview session. The strategies and method listed are focus on services of PMC as stated in scope of study.

3.3.2 Respond to Questionnaire Survey

The feedback of the questionnaire was based on the respondents past experience. The Likert Scale has been used to construct the question for this questionnaire survey purpose. There are 25 question in all section both Section B and Section C. each question has been given scale 1 to 4. Before the questions are distributed to the respondent, it is designed base on the objective of the study. Then the question made will be shown to supervisor for checking the format and relevancy of the question so the question did not sway out from the objective. After checking by the project supervisor, the questionnaire survey forms will be distributed to the respondent. The respondents were asked to rate their preferences (with Likert Scale ranging from 1 to 4 in ascending order where:-

- I. Strongly Disagree (SD)
- II. Disagree (D)
- III. Agree (A)
- IV. Strongly agree (SA)

In this study, the answer with the scale between 3 and 4 are given an extra attention because in this level it gives the positive answer in achieving the objectives of the study. All these data were then compiled and arranged according to the respondent priority. It were then analyzed. Data obtain from the feedback were analyzed using Frequency Analysis and Average Index. It is then written back in terms of Bar Chart, Column-Chart and Pie Chart to generate findings. The data will be summarized also percentages to make more systematic and understandable. The results is then evaluated and used in the findings of objectives in the study. A brief summary was produced to conclude the outcome of the survey.

3.3.3 Frequency Analysis

Frequency analysis used a tabular form to represent the result of data analysis of frequency of response that respondents gave to the different variables in the questionnaire. The result was tabulated in the form of frequency number and percentages according to total respondents. For graphic result presentation, bar chart and pie chart are used as summaries. Frequency Analysis depends on the percentage of respondents giving the same answers. It is also used to measure the degree of agreement for certain statements. The formula of Frequency Analysis is as below:

$$\text{Percentage (\%)} = (n/N) \times 100\%$$

Where:

n = Number of respondents

N = Total number of respondents received

3.3.4 Average Index Analysis

The result of the data collected will be further summarized by using average index analysis. The average index analysis for each variable was calculated by using the similar classification of the rating scale proposed by Abd. Majid (1997). Likert Scaling were defined as follows:

$$AI = \frac{\sum [n1(1) + n2(2) + n3(3) + n4(4)]}{\sum n1(4)}$$

$$\text{Average Index (AI)} = \frac{\sum ai \cdot xi}{\sum xi}$$

Where:

xi = Number of respondents x rating scale

ai = Rating scale

x = Number of respondents

The classification for the index scales used is as following:

Classification for index scale stated by Mc Caffer and Majid (1997), (Norzamzilla Mustafa, 2003)

- I. Strongly Disagree (SD) $0.00 < \text{Average Index (I)} < 1.00$
- II. Disagree (D) $1.00 \leq \text{Average Index (I)} < 2.00$
- III. Agree (A) $2.00 \leq \text{Average Index (I)} < 3.00$
- IV. Strongly agree (SA) $3.00 \leq \text{Average Index (I)} < 4.00$

3.4 RESPONDENTS

Respondent targeted for this study are managers, project manager, engineers, supervisors and consultant themselves who might have been involved with the Project Management Consultant in various construction projects. To avoid confusing in answering the question, respondent were informed about the objectives of this study and the submission date to fill in answers. Due to lacks of time to complete this study, the respondent was asked to submit the completed form within two weeks after the form was distributed to them.

The selection of respondent is very important in order to increase accurate results of the study which must meet the following criteria:

- I. The respondent company must be registered with Contractor Service Center (PKK) and Construction Industrial Development Board (CIDB).
- II. The company must be registered in Malaysia.
- III. The company must have knowledge in Project Management Consultancy.

To give an easy view of the study methodology, Figure 3.1 shows the flowchart of the study.

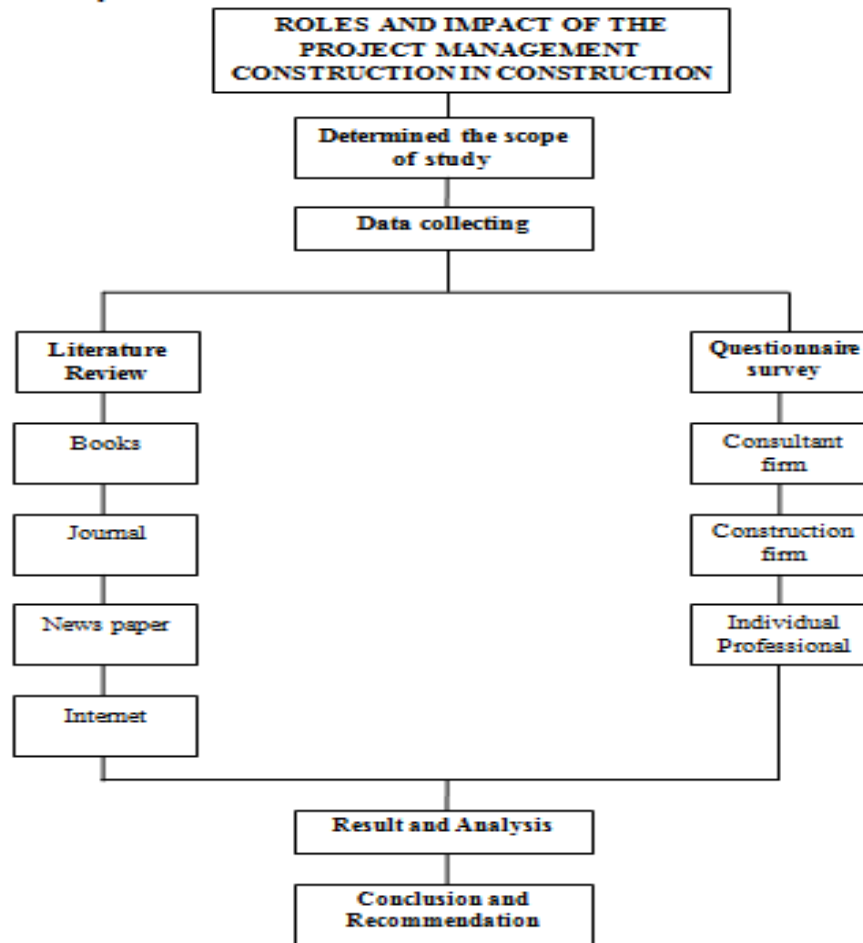


Figure 3.1: Flow chart of the Methodology of the Study

CHAPTER 4

RESULT AND ANALYSIS

4.1 INTRODUCTION

This chapter will focus on the result and analysis the data distributed questionnaire. From 50 of questionnaire form that had been distributed, there are only 40 replies back. So, this analysis is based on the answer from these replies.

4.2 RESPONDENT BACKGROUND

In Section A from the questionnaire form, the question is based on the background of the respondent. From this section, the possession of the respondent and period of company involvement in construction industry can be determined.

4.2.1 Respondent

Table 4.1 shows that the respondent's possession that answer the questionnaire. The project managers with 6 respondents, managers with 7 respondents while supervisor with 12 respondents and lastly engineer with 15 respondent which is the highest respondents for this study. Figure 4.1 is made to give an easy view of the respondent distribution.

Table 4.1 are listed the respondent's possession that distributed for this study.

Table 4.1: Position in Company/Consultant

Possession	No.	Percentage (%)
Manager	6	15
Project Manager	7	17.5
Engineer	15	37.5
Supervisor	12	30

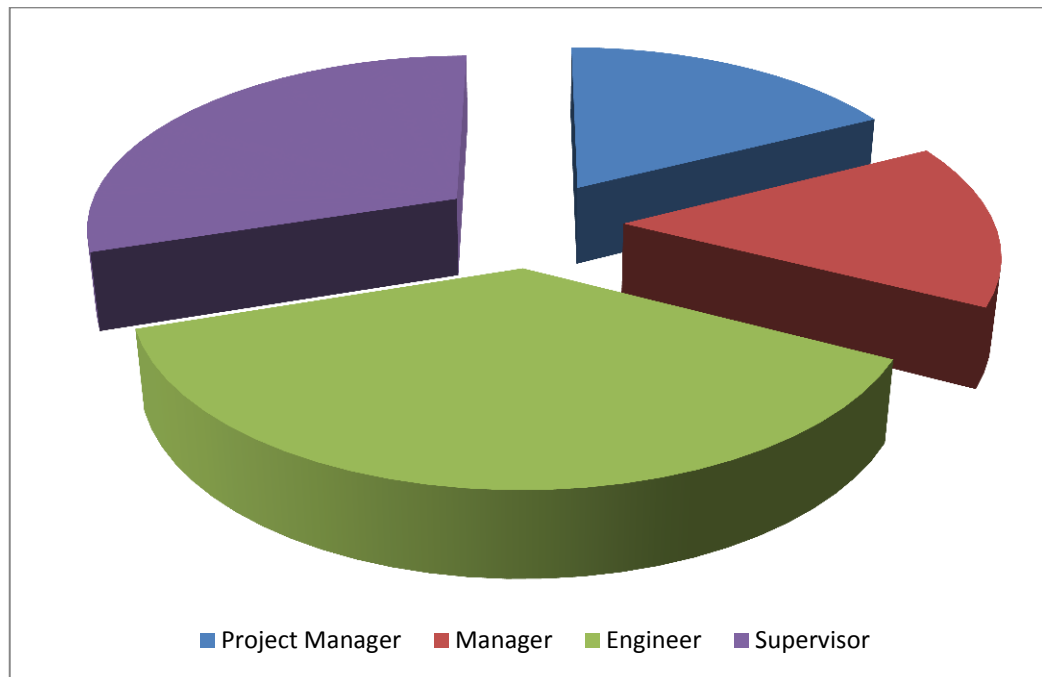


Figure 4.1: Pie chart showing the percentage according to position in company or consultant.

4.2.2 Period involved in construction

Period that company or consultant involved in construction is important because it shows the experience in company's work. Result of this question is shown in Table 4.2. This table shows that respondents had experience between '1-5 years', '6-10 years', '11-15 years' and '>15 years'. 16 of the respondents had been involved in construction for '1-5 years', then 15 of the respondents had been involved in construction for '6-10 years', and 6 respondents had been involved in construction for '10-15 years' and lastly 3 respondents that had been involved in construction for more than 15 years. Figure 4.2 also give the view of the respondent's period in construction field.

Table 4.2: Period involved in construction

Period	No.	Percentage (%)
1-5 years	16	40
6-10 years	15	37.5
11-15 years	6	15
>15 years	3	7.5

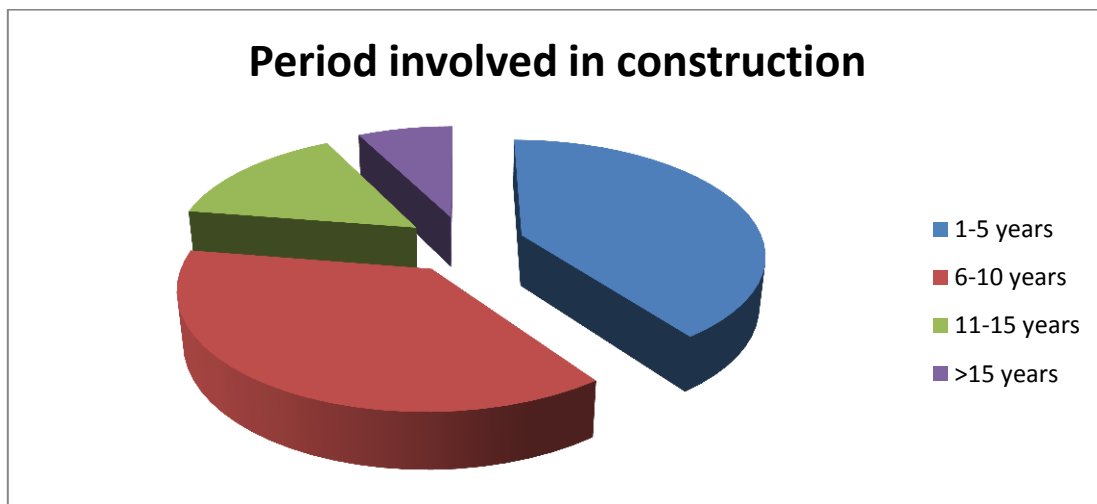


Figure 4.2: Pie chart showing the percentage according to period of respondent's company or consultant involved in construction field.

4.3 THE ROLE OF PMC

Analysis of the answer using the Likert Scale is shown in Table 4.3 below. From the table, most respondents agreed that role of PMC is to be able to managed the project time and capability to provide an effective project schedule. Sharing the same I.E of 3.5, Project risk management to analyze and mitigate potential risks also have to be one of the most important role play by PMC. Figure 4.3 is made to give an easy view of respondent distribution.

Table 4.3: The roles and responsibilities of PMC in construction field

Roles and responsibilities		Frequent analyze (FA)(%)				
		SD	D	A	SA	I.E
Project integration management (ensure that the various project elements are effectively coordinated)	RQ	-	-	32	8	
	RP			80	20	3.2
Project scope management (to ensure that all the work required (and only the required work) is included)	RQ	-	4	32	4	
	RP		10	80	10	3
Project time management (to provide all effective project schedule)	RQ	-	-	20	20	
	RP			50	50	3.5
Project cost management (to identify needed resources and maintain budget control)	RQ	-	8	16	16	
	RP		20	40	40	3.2
Project quality management (to ensure functional requirement are met)	RQ	-	8	24	8	
	RP		20	60	20	3
Project human resource management (to development and effectively employ project Personnel)	RQ	-	12	24	4	
	RP		30	60	10	2.8

Project communications management (to ensure effective internal and external Communications)	RQ	-	8	24	8	
	RP		20	60	20	3
Project risk management (to analyze and mitigate potential risks)	RQ	-	-	20	20	
	RP			50	50	3.5
Project procurement management (to obtain necessary resources from external) sources	RQ	-	4	32	4	
	RP		10	80	10	3
Index Average						3.13

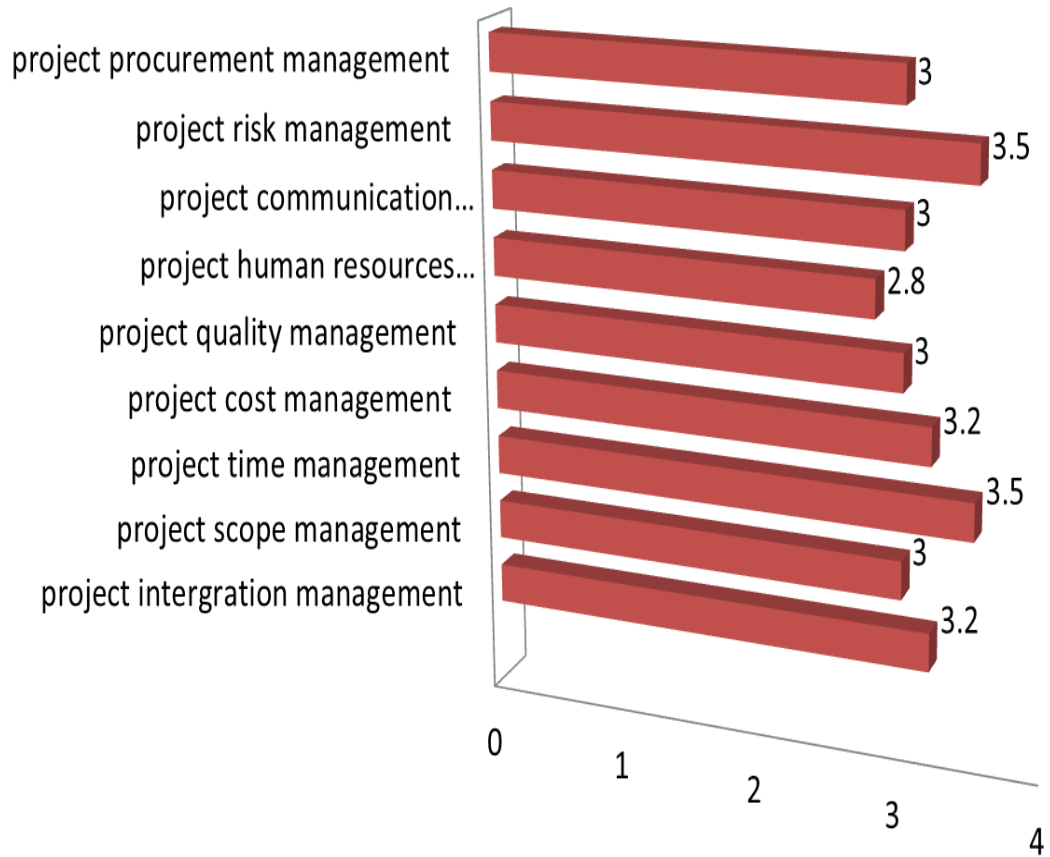


Figure 4.3: Graph showing the I.E versus The role of Project Management Consultant in Malaysia's construction industry.

4.4 THE EFFECTIVENESS OF THE PROJECT MANAGEMENT CONSULTANT IN MANAGING CONSTRUCTION PROJECTS

Table 4.4 below shows the responses to the questions. Most respondents agreed that the effectiveness of PMC is the involvement of PMC's in Government's project. 70 percent of the respondents strongly agree with it, making the I.E for it 3.7. Figure 4.4 is made to give an easy view of respondent's distribution.

Table 4.4: The Effectiveness of Project Management Consultant in managing construction project.

The effectiveness of Project Management Consultant in managing construction project.		Frequent analyze (FA)(%)				I.E
		SD	D	A	SA	
PMC is very effective in determining the scope of project assigned	RQ	-	8	20	12	
	RP		20	50	30	3.1
PMC is very effective in time management especially in scheduling and planning of the construction project.	RQ	-	4	28	8	
	RP		10	70	20	3.1
PMC has capability to prevent the project delays and complete the project within the predicted duration	RQ	-	16	12	12	
	RP		40	30	30	2.9
PMC is very efficient in cost management and provides the best possible total project cost	RQ	-	16	16	8	
	RP		40	40	20	2.8
PMC is very effective in reducing the wastage and loss in financial for the project	RQ	-	12	20	8	
	RP		30	50	20	2.9
The PMC fee are reasonable with service provided	RQ	-	16	16	8	
	RP		40	40	20	2.8

PMC uses effective quality control techniques	RQ	4	8	20	8	
	RP	10	20	50	20	2.8
PMC succeeds in achieving the project goals and objectives set by clients	RQ	-	8	20	12	
	RP		20	50	30	3.1
Involvement of PMC in government's project is recommended	RQ	-	-	12	32	
	RP			30	70	3.7
PMC cannot be blamed 100% for the project failure	RQ	-	12	16	12	
	RP		30	40	30	3
Index Average						3.02

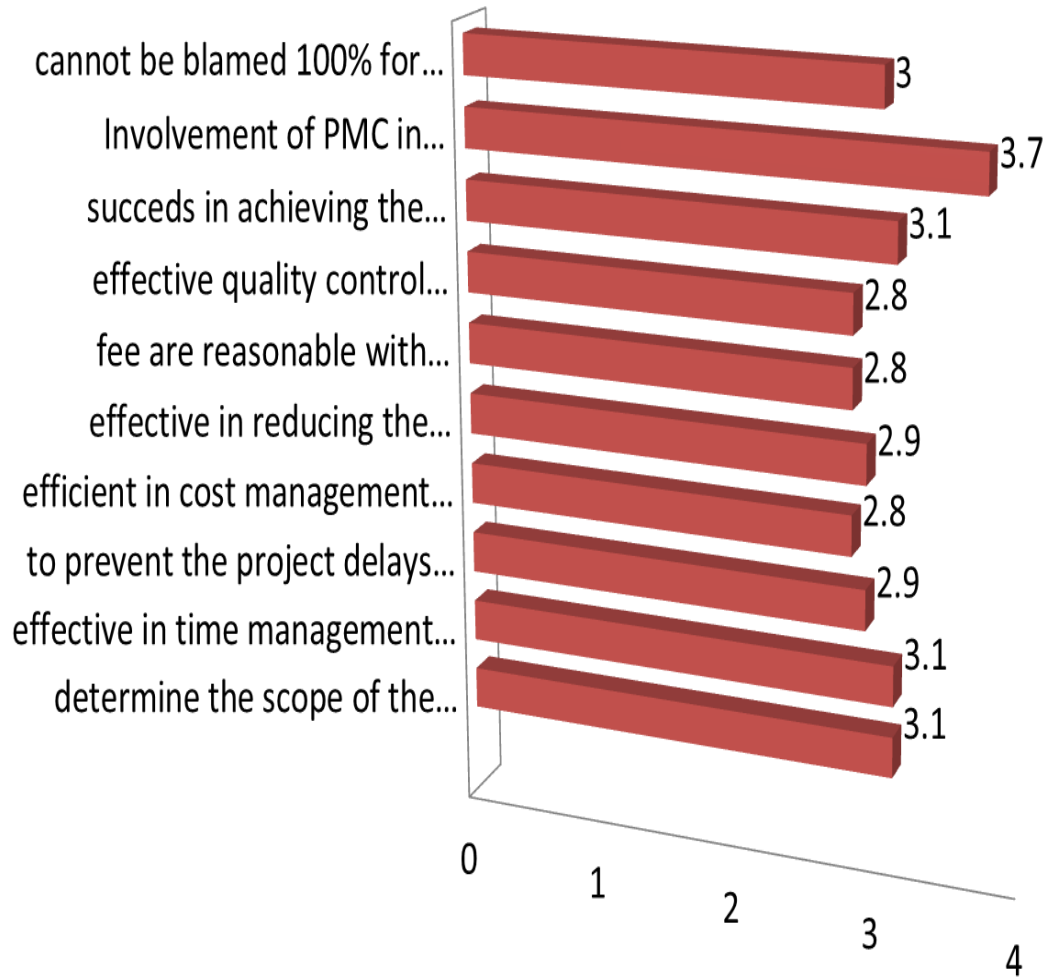


Figure 4.4: Chart showing the I.E versus The effectiveness of Project Management Consultant in managing construction project.

4.5 ANALYSIS OF THE RESULTS

4.5.1 The role of PMC

The results of the study carried out on the level of roles that should be served by Project Management Consultant were characterized as follows:

- I. Project time management to provide an effective project schedule. The respondent strongly agreed with 3.5 in the average score index.
- II. Project risk management to analyze and mitigate potential risks. The respondent strongly agree with 3.5 in the average score index.
- III. Project integration management to ensure that the various project elements are effectively coordinated. The respondent strongly agree with 3.2 in the average score index.
- IV. Project cost management to identify needed resources and maintain budget control. The respondent strongly agree with 3.2 in the average score index.
- V. Project scope management to ensure that all the work required and only the required work is included. The respondent strongly agree with 3 in the average score index.
- VI. Project quality management to ensure functional requirements are met. The respondent strongly agree with 3 in the average score index.
- VII. Project communications management to ensure effective internal and external communications. The respondent strongly agree with 3 in the average score index.
- VIII. Project procurement management to obtain necessary resources from external sources. The respondent strongly agree with 3 in the average score index.
- IX. Project human resources management to development and effectively employ project personnel. The respondent agree with 2.8 in the average score index.

4.5.2 The effectiveness PMC

Analyzed data for the Effectiveness of the Project Management Consultant to managing construction projects is based on question in the questionnaire. In the analysis, overall the respondents strongly agree that Project Management Consultant is effective in managing construction as outlined below:

- I. Involved of PMC in government's project is recommended. The respondents strongly agree with 3.7 in the average score index.
- II. PMC is very effectively in time management especially in scheduling and planning of the construction project. The respondents strongly agree with 3.1 in the average score index.
- III. PMC succeeds in achieving the project goals and objectives set by client. The respondent strongly agree with 3.1 in average score index.
- IV. PMC cannot be blamed 100% for the project failure. The respondents agree with 3 in the average index.
- V. PMC has capability to prevent the project delays and complete the project within the predicted durations. The respondents agree with 3 in the average score index.
- VI. PMC is very effective in reducing the wastage and loss in financial for the project. The respondents agree with 2.9 in the average score index.
- VII. PMC is very efficient in cost management and provides the best possible total project cost. The respondent agree with 2.8 in average score index.
- VIII. The PMC fee is reasonable with the service provided. The respondents agree with 2.8 in average score index.
- IX. PMC uses effective quality control technique. The respondents agree with 2.8 in the average index.

CHAPTER 5

CONCLUSION AND RECOMMENDATION

5.1 INTRODUCTION

This chapter concludes the study. Almost all of the results gained show positive answer to the objectives of the study. Though the results are positive, some modifications should be made especially through the methodologies of the study. Since a good study should be done with good methodologies in order to get reliable results.

5.2 CONCLUSION

5.2.1 The Role of Project Management Consultant in Malaysia's Construction Industry.

Based on the study carried out, it is clear that Project Management Consultant has many roles to be served in order to manage a construction project. In the literature review, it is stated that PMI has made a specification on the roles of consultant firm which is amongst them are managing and monitoring the quality of the project so that the product will satisfy client.

Through the questionnaire, on the average all respondents strongly agree that Project Management Consultant carried out their roles as specified by the PMI. With the results gained, it can be conclude that PMC has a lot of roles that should be served in order to manage construction projects.

5.2.2 The effectiveness of PMC

Throughout this study, the results from respondents on questionnaire show that PMC agreed that effectiveness in managing construction project is a primary importance. This show that PMC's are really needed in managing construction project especially mega projects and they are really effective in many disciplines related to the construction process, from beginning till the last phase.

5.3 STUDY LIMITATION

This study runs into a lot of problems that affect the data collection as follow:

- I. Many respondents did not return the questionnaire. From 70 plies of the questionnaire only 40 replies in returned.
- II. Few respondents did not answer the survey correctly.
- III. Few respondents also did not complete the questionnaire and make the data gained inadequate.
- IV. Since the author has no other financial aids other them himself, the author has difficulties in travelling to collect the required data.

5.4 RECOMMENDATIONS

The author had developed out two parts of the recommendations that were based on findings and future research studies.

5.4.1 Recommendations Based on Findings

Based on the findings outlined, the industry does aware about the problems faced in current construction process. They also do aware that there are serious urgent needs to enhance the efficiencies in current performance of industry. It can be showed that both private and government project faced the same problems. With respect to the findings as well as the conclusions drawn out from this study, several practical recommendations are worth forwarded for possible implementation.

The first and most obvious is that all parties involved in construction projects must step up their effort and gives more emphasis on the issue of communication, site management (resource and labor), site coordination, monitoring, controlling and other issues. They should make an effort to adopt methodologies which can bear improvements for them in these matters, since these were regarded as by all participants as some of the most common causes of disputes. Both communication and management issues may be improved through continuous training, since training might provide those relevant workforces with the necessary skills upgrade and enhancements that are vital in delivering professional and high quality performance in executing projects at hand. The ability to plan instead can't be enhanced nor improve by mere training.

Secondly, top management should consider and more aware on the new practical management method that might be useful in improving efficiencies of construction process. Top management should study further on the implementation of new management concept and made have some efforts on comparing the method with the traditional work process. Top management should not just think on making profit but they need to consider very well on time and quality aspects.

Thirdly, involvement from government is as important as government had authority to promote and enforce the new management concept. Government should study and prepare the guideline on implementation of new concept of management as well as other system such as IBS. Government should seek the practicality on the implementation of these methods before enforcing them.

Finally it is also recommended that for future works, all the construction players be more alert and aware of new strategies and method. The respective board such as board of engineer, board of architect and institute of surveyor Malaysia (ISM) need to supply information to their members and keep updating them with new information.

5.4.2 Recommendations for Further Research Studies

Since the author had covered only limited area in this research, it is proposed data collected represented the whole part of Malaysia which presented the problems in Malaysia and more ideas on strategies of improvement will be discovered. This study also needs to be focused in technical perspective as well. In future, the study will cover the practical and efficient strategies not only in terms of management perspective but as well as technical perspective.

LIST OF REFERENCES

- Abd. Majid, Muhd Zaimi (1997). "Non-Excusable Delays in Constructions." Loughborough University of Technology, UK: PhD Thesis.
- Abdullah, Fadhlin (2004). "Construction Industry & Economic Development: The Malaysian Scene." Universiti Teknologi Malaysia.
- Abdul Kadir, Mohd Razali, and Abang Ali Abang Abdullah (2003). "Why the need for Project management in the Construction Industry?." Third conference of Asian Federation of Engineering Organisations, Project Management in Asian region, 10 – 13 September 1984, Kuala Lumpur, Malaysia.
- Al-Hammad, A-Mohsen and Assaf, S. (1996). "Assessment of Work Performance of Maintenance Contractor in Saudi Arabia." Journal of Management in Engineering, ASCE, Vol. 16, No.1.
- Alan, M. Stretton (1997) "Developing a Project Management Body of Knowledge." The AMA, handbook of Project Management, Editor, Paul C. Dinsmore, Amacom, American Management Association, New York, USA.
- Albakri, Hisham (1984). "Project Management in the Building Process – Relationship between the Project manager and The Design Team (Architect and Consultants)." Third conference of Asian Federation of Engineering Organisations, Project Management in Asian region, 10 – 13 September 1984, Kuala Lumpur, Malaysia.

- Alexander Hamilton Institute (1984). "The Secret of Successful Project Management." New York, USA, Modern Business reports.
- Andrew, A.L.Tan (1996). "Project Management in Malaysia: a Comprehensive Approach for Successful Management of Property Development Project From Conception until Completion." Synergy Books International, Kuala Lumpur, Malaysia
- Bernard, Wang T.H. (1987). "Construction and Development (with reference to Malaysia)." Selangor, Pelanduk Publication.
- Chartered Institute of Building (CIOB) (1988). "Project Management in Building." United Kingdom (UK), CIOB.
- Chartered Institute of Building (CIOB) (2002). "Code of Practice for Project Management for Construction and Development." United Kingdom (UK), CIOB.
- Damodara, U. K (2000). "Global Project Management – Not Business as Usual." Journal of Management in Engineering, November/December, 2000, pp. 29-33.
- Degoff, Robert A. and Friedman Howard A. (1985). "Construction Management-Basic Principles for Architects, Engineers and Owners." Canada, John Wiley & Sons, Inc.
- Dhillon, B. S. (2002). "Engineering and Technology Management Tools and Applications." Boston, London, Artech House.
- Edwin, O.O. S (1984). "Project Management and the Public Sector Client – Four Case Studies." Organizing and Managing Construction, Proceedings, 4th International Symposium on Organization and Management of Construction, Vol.1, Canada, University of Waterloo, pp. 275.
- Ellen, R. Girden (1996). "Evaluating Research Articles, From Start to Finish." United States, America, SAGE Publications.

- Ernest, E. Ludwig (1988). "Applied Project Engineering and Management 2nd Edition." Houston, Texas, Gulf Publishing Company.
- Foxhall, William B. (1976). "Professional Construction Management and Project Administration 2nd Edition." New York, Architectural Record and the American Institute of Architects.
- Fred, Leavitt (2001). "Evaluating Scientific research, Separating fact From Friction." New Jersey, Prentice Hall.
- Harold, Kerzner (2003). "Project Management, a System Approach to Planning, Scheduling, and Controlling." 8th Edition, New Jersey, John Wiley & Sons, Inc.
- Harold, Kerzner (2004). "Advanced Project Management, Best Practices on Implementation." 2nd Edition, New Jersey, John Wiley & Sons, Inc.
- Hussein, Jamilus (2003). "Emerging Challenges of Project management in Malaysia." Project Management Beyond: Facing the Challenges of Globalisation, 8-9 September 2003, Palace of The Golden Horses, Mines Resort City.
- Inderjit, Singh (1979). "Procedures for Appointment of Consultants." Seminar on Appoinment of Consultant, November 26 – 27, 1979, Regent Hotel, Kuala Lumpur.
- James, A. Bent and Albert Thumann (1994). "Project Management for Engineering and Construction." 2nd Edition United States of America, The Fairmont Press, Inc.
- Judith, Bell (1999). "Doing Your Research Project, a Guide for First-Time Researchers in Education and Social Science." Third Edition, Buckingham and Philadelphia, Open University press.
- Keri, Philips and Patricia, Shaw (1989). "A Consultancy Approach for Trainers." England, Gower Publishing Limited, pp. 38.

- Kuprenas, John A., Farzin, Madjidi, and Smith, Bradley M. (1999). "Implementation of Project Management in Public Engineering Organization." *Journal of Management in Engineering*, May/June, 1999, pp. 69.
- Levy, Sidney M. (2000). "Project Management in Construction." 3rd Edition, New York, McGraw-Hill.
- Lim, Fang Keong (2000). "Project Management in Malaysia – Strategies, Techniques and Implementation for Project Success." Seminar on Project Management in Malaysia: Strategies, Techniques and Implementation for Projects Success, 10th March 2000, Hilton Hotel, Kuala Lumpur.
- Low Sui Pheng and Christopher H.Y. Leong (2001). "Asian management style versus Western management theories-A Singapore case study in construction project management." *Journal of Managerial Psychology*, Vol. 16 No. 2, 2001, pp. 127-141.
- Mary, Freeherry DeWeaver,. and Lori, Ciprian Gillespie (1997). "Real-World Project management, New Approaches for Adapting to Change and Uncertainty." *Quality Resources*, New York, A Division of the Kraus Organization limited.
- Maloney, William F. (2002). "Construction Product / Service and Customer Satisfaction." *Journal of Construction Engineering and Management*, November / December, 2002, pp.522 – 529.
- Morris, P.W.G. (1994). "The management of projects." London, Thomas Telford Services Ltd.
- Oberto, Oberti (1984). "Project management by professionals: correct procedures and pitfalls." *Organizing and Managing Construction*, Proceedings, 4th

- International Symposium on Organization and Management of Construction, Vol. 1, Canada, University of Waterloo, pp. 275.
- Pang, Leong Hoon (1979). "Criteria for Selection of Consultants with Special Reference to Water Resources Development Study/Project." Seminar on Appointment of Consultants, 26th and 27th November 1979, Kuala Lumpur, Malaysia.
- Patrick, Forsyth (2002). "Smart Things to know about Consultancy." Oxford, United Kingdom Capstone, Publishing Ltd (A John Wiley & Sons Co).
- Philip, Bell-Booth (2000). "Project Management Services." Project Management in Malaysia – Strategies, Techniques and Implementation for Project Success, 10th March 2000, Hilton Hotel, Kuala Lumpur
- Project Management Institute (1996). "A Guide to the Project Management Body of Knowledge." Newtown Square, USA, Project Management Institute.
- Smith Martin E. (2001). "What client employees say about consultants." Leadership & Organization Development Journal, November 2001, pp. 93 – 103.
- Sugata, Biswas and Daryl, Twitchell (2002). "Management Consulting, a complete guide to the industry." 2nd Edition, New York, John Wiley & Sons, Inc.
- Stanley, C. M. (1982). "The Consulting Engineer." 2nd Edition, Canada, John Wiley and Sons, Inc.
- Stallworthy, E. A. and Kharbanda O. P. (1985). "International Construction and the Role of Project Management." England, Gower Publishing Company Limited.
- Tan, Soo Hai (1979). "Criteria for Selection of Consultants and Position of Foreign Consultants." Seminar on Appointment of Consultants, 26th and 27th November 1979, Kuala Lumpur, Malaysia.

- Tang, S. L., Ming Lu, and Chan Y. L. (2003). "Achieving Client Satisfaction for Engineering Consulting Firms." *Journal of Management in Engineering*, ASCE, October 2003.
- Walker, Anthony (1984). "Project Management in Construction." Britain, Granada Publishing
- Walker, Anthony (2002). "Project Management in Construction." 4th Edition, Britain, Granada Publishing
- Young Jang and Jinjoo Lee (1998). "Factor influencing the success of management consulting projects." *International Journal of Project Management*, Vol. 16, No. 2, pp. 67-72, Great Britain.
- Yeoh, Eng Hun (1984). "Project Management for the Re-development of the Kuala Lumpur International Airport Phase 1." Third Conference of Asean Federation of Engineering Organisations, September 10-13, 1984, Petaling Jaya, Malaysia.

APPENDIX A

RESEARCH ON ROLES AND IMPACT OF PROJECT MANAGEMENT CONSULTANCY IN CONSTRUCTION PROJECT

Student Information:

Name: Nur Syahidah binti Abu Bakar

Degree project title: Study on Roles and Impact of Project Management Consultancy in Construction Project

Supervisor: Dr. Omar bin Jamaludin

Participation Information

Confidentiality: Your answer will be treated confidentially. The findings of this study will be used for academic purposed.

Survey Result: It will be made available in statically form

Questionnaire: Please complete the questionnaire by your good self.

Your Right: Your participation will be greatly appreciated. You can stop at any point, or choose not to answer any particular question, for any reason

“Thank You very much for your time and cooperation”

SECTION A: COMPANY/CONSULTANT PROFILE

I. Name of Company/Consultant:

II. Possession in Company/Consultant:

III. INVOLVEMENT PERIOD IN CONSTRUCTION:

1-5 years	
6-10 years	
11-15 years	
>15 years	

IV. Current Project:

V. Company/Consultant's Stamp

PLEASE TICK \surd AT THE FOLLOWING COLUMN

1= Strongly Disagree
Agree

2= Disagree

3= Agree

4=Strongly

SECTION B

The First Objective of The Study: To study the need of Project Management Consultancy (PMC)

1. Analyse the project definition in functional terms to meet the performance objectives and to advise the clients with respect to the definition ,consistency , practically and controllability of all aspect of the project

1 2 3 4

2. To advise the clients on the terms and conditions of contract, to prepare the contract document , to prepare the Letter of Offer and Letter of Acceptance and assist the client on terms and condition inside both contract

1 2 3 4

3. To prepare Meeting report and monthly progress report

1 2 3 4

4. To prepare various levels of the project schedules for planning and implementation and to monitor all the activities, to provide input to the project schedule regarding construction activities and to examine and analyse the project planning

1 2 3 4

5. To coordinate the services of the design consultant and other professional consultant , examine and consider all plans produced by the design consultant, examine and control designs and plans and liaise with the relevant authorities for approval

1 2 3 4

6. To ensure timely completion of the project and instruct the contractors on any incomplete works and defects, monitor project progress , take reasonable measures to control progress , arrange for site inspection, monitor any defect, and arrange for repair works

1 2 3 4

SECTION C

Identify what the roles and responsibilities are of Project Management Consultants (PMC)

1. Project integration management to ensure that the various project elements are effectively coordinated

1 2 3 4

2. Project scope management to ensure that all the work required (and only the required work) is included

1 2 3 4

3. Project time management to provide all effective project schedule

1 2 3 4

4. Project cost management to identify needed resources and maintain budget control

1 2 3 4

5. Project quality management to ensure functional requirement are met

1 2 3 4

6. Project human resource management to development and effectively employ project Personnel

1 2 3 4

7. Project communications management to ensure effective internal and external communications

1 2 3 4

8. Project risk management to analyze and mitigate potential risks

1 2 3 4

9. Project procurement management to obtain necessary resources from external sources

1 2 3 4

SECTION D**Identify the effectiveness of Project Management Consultants (PMC) services**

1. PMC is very effective in determining the scope of project assigned

1 2 3 4

2. PMC is very effective in time management especially in scheduling and planning of the construction

1 2 3 4

3. PMC has capability to prevent the project delays and complete the project within the predicted duration

1 2 3 4

4. PMC is very efficient in cost management and provides the best possible total project cost

1 2 3 4

5. PMC is very effective in reducing the wastage and loss in financial for the project

1 2 3 4

6. The PMC fee are reasonable with service provided

1 2 3 4

7. PMC uses effective quality control techniques

1 2 3 4

8. PMC succeeds in achieving the project goals and objectives set by clients

1 2 3 4

9. Involvement of PMC in government's project is recommended

1 2 3 4

10. PMC cannot be blamed 100% for the project failure

1 2 3 4