IMPROVEMENT OF RELATIONSHIP BETWEEN MAIN CONTRACTOR AND SUBCONTRACTOR FOR SUCCESSFUL CONSTRUCTION PROJECT IMPLEMENTATION

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ABSTRACT

Cooperation between the main contractor and subcontractor to deliver the construction project within the time, quality and cost are important in the construction industry. The success of the construction project depends on the subcontractors because they are the party that execute the technical and the operation of the works. The main contractor needs to possess the ability to effectively coordinate and manages the sub-contractors. Despite to this importance, there are relationship issues between the main contractor and the subcontractor that required to be reviewed. The objectives of this research were to determine the factors leading to relationship problems between the main contractors and subcontractors in a construction project and to propose recommendations to improve the main contractor and subcontractor relationship for a successful project implementation. A qualitative method was chosen and face to face semi-structure interview was conducted by having the discussion with six respondents from both main contractors and subcontractors. The scope of this research is the housing development project in Johor Bahru. The data collected was analysed using content analysis. The outcome of this research concluded the relatives to this issues, the factors leading to relationship problems between the main contractor and subcontractor are time and cost overrun factor, delay, trust, lack of quality, lack of communication, lack of safety, shortage of construction material and shortage of skill labors. On the other hand, the recommendation to improve the relationship between both parties are skill, integrity, trust, responsibility and communication application which is mutual in a contractual relationship between both parties. In conclusion, the finding can assist in the improvement of the main contractor and subcontractor relationship for successful construction project implementation.
ABSTRAK

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CHAPTER 1

INTRODUCTION

1.1 Introduction

The construction industry is an important industry, which plays a vital role in the socioeconomic growth of a country. Economically, it contributes in significant improvement in the overall GDP of a country. In Malaysia, the GDP for construction industry was the fastest ranking to be compared with other industry with 7.4% rate in quarter 2015 (Department Statistic Malaysia, 2016). It totally improves the better quality of human life as construction industry supply for the infrastructure such as hospitals, roads, schools and other facilities for necessary purpose (Wong et al., 2007). Hence, it cannot be denied that construction industry has been propelled by demand for the projects (Endut, 2008).

There are so many parties involves in the construction project starting from professionals until the labors such as clients, consultants, main contractor, subcontractor, supplier and labors which can cause problems between them, for example, the lack of trust, delay, lack of communication that can cause conflict leading to relationship problems among all this project stakeholder during the implementation of construction project (Huang et al., 2008).

With the rapid development in technology and increasing in many type of construction technology, the involves parties required to pay more attention in any interface problems that will occur during construction process and need to be resolved accordingly.
1.2 Background of Research

According to Rashid et al. (2006), the factors that influence the overall productivity is the quality-related, time-related and also cost-related that give significant challenges to the development of construction industry in Malaysia nowadays. As demand for construction continues to grow, the main contractor facing lots of challenges in terms of the ‘relationship’ between the main contractor and subcontractor.

The relationship between main contractor and subcontractor is very crucial as they are the persons who will make the project complete into reality. The management in construction projects involves a great deal of managing risks to be apply and to be practice. Managing risks involves: planning, identifying, analyzing, developing risk handling strategies, monitoring and control. Consequently, the factors that lead the relationship problems between the main contractor and subcontractor are seem to be ignore since the main contractor only focus on the organizational client need (Huang, 2008).

Thus, all related issues and factors must be resolved between both parties which involves in a development of construction site. Therefore, it is essential to rigorously categorize the relationship problems between the main contractor and subcontractor to accurately study their factors and recommendation can be made during process for successful implementation projects in order to improve the quality and productivity of the construction projects.

1.3 Problem Statement

Within the construction projects, where the concept of relationship is being tried to be improved, all the project participants are realising that the sharing of knowledge and information is the one of the key elements of success in a construction project. Main contractors played a significant role in the most projects in construction field, also commonly referred to subcontractors as the execution of construction works. However, the relationship between them is slightly poor (Andreas et al., 2009).

According to Thomas (2011), main contractors are responsible for the construction of projects, but they rely on subcontractors and/or specialist contractors
and suppliers to execute the works. The main contractor does this to reduce their overhead and operating costs, improve efficiency, and achieve a more economic delivery of projects (Al Turkey, 2011).

Hola et al. (2014) also identify that there is poor level of information sharing between main contractors and subcontractors. They reveal subcontractors’ unhappiness with main contractors was due to the insensitivity of their need for prompt and correct information. Costs that run beyond estimates can result in losses for construction company. Some of the largest construction contractors have significant numbers of projects based on fixed price contracts, in which they bear the risk for cost overruns. Factors such as raw material costs, economic conditions, and weather-related delays could lead to losses for construction company. The longer the term of the contract, the greater the potential deviation from original estimates (Huang, 2008).

According to Arditi and Chotibhongs (2005), many problems arise between main contractor and subcontractor concerning on the management, quality, workmanship and other related problem that will influence the relationship between the main contractor and subcontractor. The subcontractor scope of works and responsibilities are always misunderstood when there is some confusing information by the main contractor and subcontractors.

The main contractors, on the other hand, complain that subcontractors have a habit of bringing in adequate workmen to site, a practice which hampers the works and fuel conflicts (Hook, 2012). Hook (2012) added that, common risks main contractors face include weather, unexpected job conditions, personnel problems, errors in cost estimating and scheduling, delays, financial difficulties, strikes, faulty materials, faulty workmanship, operational problems, inadequate plans and specifications, and disaster. Contractors can respond to the price of risk before a construction project or after. All the situation stated had leading relationship problems between the main contractor and subcontractors.

With the problem stated above, therefore this research is undertaken to look into the factors that lead to relationship problems between the main contractor and subcontractor that always occur in construction industry. The main contractor and subcontractor relationship needs to be maintained throughout procurement process and construction to enable a strong interface within the project team, which signifies a positive move away from the traditional adverse relationships.
1.4 Research Questions

Based on the problem statement outlined above, the research questions for this study are as follows:

1. What are the factors leading to relationship problem between main contractor and subcontractor in a construction project implementation?

2. How to improve the relationship between main contractor and subcontractor for a successful construction project implementation?

1.5 Research Objectives

The aim of this research is improvement of relationship between the main contractor and subcontractor for successful construction project implementation. Following are the objectives in order to achieve this aim:

1. To determine the factors that lead to relationship problems between main contractor and subcontractor in a construction project.

2. To propose recommendations to improve the main contractor and subcontractor relationship for a successful project implementation.

1.6 Research Scope

This study focuses on housing project which involve of respondents from the main contractor and subcontractor who practice in the construction industry in Johor Bahru, Johor. There are many individuals and companies owner are grown very fast to expanding their demand on the market such as residential housing construction, commercial construction and many types of development especially in Johor Bahru. Johor Bahru was chosen because many developments are in rapid progress if compared to other states in Malaysia as statistic shown in Figure 1.1.
In order to make the project into reality, many parties needed to be involved to implement the structures and this is include main contractor and subcontractor. Therefore, the study is to find out the factor that lead to relationship problems between main contractor and subcontractor at construction site for successful project implementation. This research, focuses on two groups of respondents, the main contractors and also the subcontractor, consist of the selected sample represented all classification categories of the main contractors from Grade 5 and above. For the second population of subcontractors, the selected subcontractors represented did all specialties of works such as shuttering, building, plastering, tiling, painting, mechanic, and electrical, aluminum, carpentry and ironmongery.

1.7 Significance of Research

To complete the project, the main contractor and subcontractor are the most important team in construction site to ensure all the project are completed on time, provide good quality and also follow the time schedule.
This research will provide many information in the construction industry especially who are practicing in construction site which involvement of main contractor and subcontractor in many specialists. Among of the issues which arise are the relationship between main contractor and subcontractor. In addition, this research list all the relationship problems between the main contractor and subcontractor. Therefore, this research discover the factor that lead to the problems of relationship between main contractor and subcontractor in a construction project. This research is also hope can solve the problems that arise between the main contractor and the subcontractor through the recommendation given by the main contractor and subcontractor based on their perspectives.

1.8 Research Methodology

Research process and method of approach were used as guidelines to meet the objectives of the study. Every step has been organized to make sure all the data and information could be done in systematic ways. The steps of the research methodology are shown in Figure 1.1;

![Figure 1.2 The stage of research methodology](image_url)
Figure 1.2 shows, when the topic has been selected, the problems were identified at the beginning of the research. At the same time, the objectives of the research were establishing. Then data collection was divided into primary data and secondary data. The primary data was collected from the qualitative method which is interview session. Interview with the practitioners of the construction (main contractors and subcontractors) was conducted face to face and the question was given by the researcher to gain more information from the respondents. The sources of the secondary data basically come from the literature review, thesis, journal, electronic media and books. Then the data were analysed using the content analysis, table and paragraph to get the result. Conclusions were given after data analysis finish analysed and the recommendations were made to end of this research.

1.9 Outline of Thesis

The outline of this thesis has five chapters which was covered in this research study. In general, this study focused on improvement of relationship between main contractor and subcontractor for successful construction project implementation.

The chapter 1 was present about the introduction, background of research, problem statement, research questions, research objectives, research scope, significance of research and research methodology. In this chapter, the researcher want to explain what the research is all about and the description of the research.

In chapter 2, the focused more on literature review. Literature review involves the systematic identification, location, and analysis of documents containing information related to the research problem. The term is also used to describe the written component of a research plan or report that discusses the reviewed documents. These documents can include articles, abstracts, reviews, monographs, dissertations, other research reports, books and electronic media. Besides, the purposes of the literature reviews are act as benchmark for comparing the results of research study to other findings.

In chapter 3, research methodology was explained about introduction, research process, problem definition, research approach, respondent selection, research instrument that suitable for this research study, data collection which is divided into primary data and secondary data and data analysis to get the result.
In chapter 4, the results of the data analysis are presented. The data were collected and then processed in response to the problems posed in chapter 1 of this research. The findings from the qualitative data was presented in this chapter demonstrate the potential for merging theory and practice by using content analysis.

In chapter 5, the conclusions and recommendations was suggested in this chapter. This chapter consist of conclusion, limitation of study, recommendation and closure. This chapter was highlighted any interesting, new or unexpected findings which did not discover in conducting the literature review.

In conclusions, the outline of thesis is a road map list in order to provide a good process and important element in writing of research study. An outline of thesis also helps to target the research areas, always keep within the scope without going off-track, and it can also help to keep the argument in good order when writing the essay.

1.10 Summary

Construction nowadays create too many problems especially at the site between the main contractor and subcontractor. Normally it will involve the practitioners on site construction. In this chapter, the introduction of the research explained about the factor and issues in the industry, followed by research background, statement of problems, objectives of the study, the scope, significant of study, research methodology and outline of the thesis in this research study.
CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter aims to provide an overview of the literature review related to this research. This chapter also briefs with the scenario in our construction industry, the challenges in the construction industry and the importance of time, cost and quality. This chapter will also review on the concept of relationship between all parties which involved in a construction project and most importantly the relationship between the main contractor and their subcontractor. The issues between main contractor and subcontractor create many conflict among them. The problems mostly faced in the construction industry are usually from the design process and the construction process. Both problems can give bad impact to the productivity of the construction industry later. Lastly, this chapter will explain the recommendation to improve the relationship between the main contractor and the subcontractor for successful project implementation in the future.

2.2 Current scenario in construction industry

Construction industry is one of the major contributors that motivate and expand Malaysia’s national economy. Nowadays, the construction industry acts as the engine of the country economic growth (Memon et al., 2013) where buildings and structures have enabled mankind to meet their special needs for shelter, economic to feed the nation’s investment needs, as well as in satisfying corporate objectives.

Activities in the construction industry play an important role in achieving the national socio-economic development, such as providing shelter upgrading and improving the infrastructure system and providing employment opportunities
especially for the locals. In accordance to the literature review, the construction industry activities give tremendous impacts in every aspect of the economy; which is why it is one of the industries that has been categorized as economic driver, particularly in developing countries (Rangelova, 2015).

The results from the construction investment that gives effects through the local and national economy, is from the appropriate planning that involved many parties whom connected with many available construction resources (Teplicka et al., 2012)

### 2.2.1 Challenges in construction industry

Construction industry is one of the industry that contributes the most to the ecological problem especially to our environment as compared to other sectors. However, according to Johnston (2007), most construction project nowadays has already practiced the sustainability to the environment when doing the construction work.

Plessis (2007), in her studies has mentioned that Malaysia’s continuous growth to achieve the vision 2020 has caused most developers to exert more priorities on the economic issues as compared to the sustainable agenda of the country.

The labor crisis is not a new issue, in fact it has been reported years ago. To date, the issue regarding labor crisis such as lack of skills and low number of local labors in the construction industry are still a big concern to the industry. Nevertheless, most experts predicted that it will continue to be better in 2016 and beyond, as talent deficit requires multiple years to fill up again (Menk, 2016).

Volkov (2013) had explained about Building Information Modeling (BIM) where according to him, BIM has been a growing trend for years, as it is no longer relegated to large firms. Experts have also stated that BIM is capable in providing tangible business benefits. Many organizations agreed with BIM's ability to provide consistent, accurate and less time-consuming project documentation. Moreover, BIM users can also expect a better collaboration and coordination among the different parties such as consultants and contractors that are involved in that particular project.

The opportunities in construction are growing, but so is project complexity. With companies already operating under razor-thin profit margins, a single production
surprise can wipe out profits for the whole company. Design complexity compounds this problem. As designs become larger and require greater efficiency, construction companies struggle to keep up. The lack of on-time and on-budget projects is one of the challenges in the construction industry today (Idrus et al., 2011).

According to Othman (2012), relationship between contractors and subcontractors are often overloaded and expose to dispute due to a poor sense of fairness and misunderstanding of each other’s need. As stated by Olawale and Sun (2010) a construction project involves so many parties such as owners, designers, construction main contractor, subcontractor, maintenance contractor, and material suppliers that some relationship problems cannot but arise, e.g. lack of cooperation, inefficient communication, interruptions and lack of identification of responsibilities and proper record of work carried out by subcontractor may cause confusion on site leading to relationship problems between project stakeholders.

In conclusion, the challenges in the construction industry are varies in all aspect and angle. Thus, all project stakeholders need to ensure that all the challenges in the construction industry are facing together for successful project implementation.

### 2.2.2 The importance of time, quality and cost in construction industry

Nowadays, most construction organizations still taking it lightly when it comes to evaluating the total cost of their project management performance. Normally, they will emphasize more in getting the work completed within the given time, and cost and also in complying with all the quality specifications required for the projects (Qureshi et al., 2009).

The rapid and smooth growth of Malaysia’s construction industry has managed to attract many new and potential investor to invest in this country such as investors from China. However, Abu Mansor (2010) in his study has stated that although RM230 billion has been allocated in the 10th Malaysian Plan, the construction industry was found to be unable to complete their project within the given time and under the estimated cost.

According to Pheng et al., (2006), time is an intangible resource in project management especially in construction industry and it is considered as a unique integer due to its finite element. Time availability of a project is defined as the availability of
time needed to complete the designated work. Meanwhile, when a project is unable to finish within the planned duration and require an extension of time, it indicates that the project has a time overrun.

In a rapidly growing construction market, there is a vital need to ensure that the project is done with approved quality as explained by Huang (2008). A good quality product is not only to meet the customer requirements, but also to do it at the lowest cost. Sharma (2006) has suggested that a timely help from the top management in getting the resources or making a decision for critical issue that often arise during the construction work can leave a big implication on overall cost performance. This is significant especially when dealing with short duration projects where with each day of delay, there will be large detrimental effect on cost.

For a construction project to be categorized as a successful project, its main focus will be on the construction processes and the ability to accomplish project cost and time objectives. Productivity success deals with the quality of the project’s final product and the quality objectives of the project (Pheng and Chuan, 2006). Sharma (2006) has pointed out that a successful commercialization of quality products requires due attention to the complete supply chain (both suppliers and distributors).

Time, cost and quality is the triangle that connects the three major elements in the construction industry. Their impact on each other will be just as unique to a construction project’s circumstances. Hence, it can be concluded that the key to a successful project is when the project has the right balance of quality, time and cost that may vary according to the particular requirements of the project.

2.3 Concept of relationship between parties involved in construction industry

Relationship as explained by Mouzas and Ford (2007) is a social exchange process that includes personal bonds between two persons or more, and plays an important role during their development. Meanwhile, trust can be reacted as inter organizational as well as interpersonal.

The systematic study shows that interpersonal relationship and their impact especially in human behavior and development was developed with years in the concept of relationship (Hinde, 1979). The relationship is also shaped by various geographical sizes and natural resources of different economies. Thus, relationship
and trust can be interdependence factor for both people and organization. In conclusion, relationship is one of the indicators used in achieving the strategy goals and indirectly can improve the performance of a project.

2.4 Parties involves in construction project

A construction project normally involves many parties in order to provide good productivity of a construction project. The involvement of the client as owner, consultant, main contractor and subcontractor continuously are essential to make sure the project is in track and is able to be completed as demanded by the owner.

A highly effective team can gain a great outcome, by establishing good working relationship and conducive environment while minimizing conflict in the project team. With reference to this working concept, collaboration between parties as a team will ensure all the knowledge and experiences can meet the needs in today’s world and also in future.

2.4.1 Client/Owner

Client is the party that has the authority in making decision especially on goals, objectives, and parameters as well as the time that the project can start to commence since they are the owner of the project. Every project is unique since every client has different perspective and idea that will later be elaborated by a team of consultants led by an architect. The client is the initiator and financer to all the construction project (Al turkey, 2011) and Kelly (2015) also agreed with it by stating that different owner (client) will think from different perspectives. They will always put the value of management as their main priority to ensure their investment worth every cent.

Kelly (2015) has also mentioned that client can be categorized into a few categories as listed below:

a) Commercial

A commercial client is comprised of company, factory or any that need to do construction works to aid their business process or production. The strict legal in
today’s world make it clear that regulations have to be followed strictly especially in safety and environmental regulation pertaining to planning and construction of any particular building.

b) Private
Private clients comprised of person like sole trader or local people who need a group of professional team to handle the construction, alteration and also maintenance of their private properties.

c) Government
Government based project normally involved three levels; local council, state and territory government and central (federal) government. The division of this level shows that the government client does all the works. For instance, the local council will handle small maintaining services, the state government will instruct to do a public building or significant infrastructure changes. The central government will only manage the infrastructure projects.

d) Public Limited Companies
Public limited companies consist of companies that are listed in stock exchange such as banks, developer and also retailer in which these companies have public shares and normally there will be -a tender or a contract before construction work can proceed.

Construction rarely will has the same design since different type of clients has different and variety of ideas that is usually unique. This resulting in different expert and professional team required for each project due to the unique characteristics of the project in terms of planning and execution of works.

2.4.2 Consultant

Consultants- normally involved in the initial stage of a construction project and their presence at the early stage is usually beneficial to the client. Consultant will be in charge in project budgeting and management, to advice the client and give solutions
for any issue that may arise with regards to their design, to prepare feasibility study before construction work starts and to take care of space relationship (Locke, 2013). Consultants consist of a team that was appointed by the client to perform the given task for the construction project. According to Tai et al. (2008), consultant should work as a team with architect, engineer, quantity surveyor and other related consultant to discuss and work together in order to resolve any issue pertaining the project. Therefore, communication and trust is a vital factor to all consultants in ensuring the success of the project, by allowing a smooth planning of the project and getting the project to complete within the given timeline.

2.4.3 Main Contractor

Rahman (2013) mentioned in his studies that a collaboration is necessary in construction project to ensure the success of a project, especially to the main contractor that holds the greatest responsibilities towards the development of the project. Their scope of works includes planning, coordinating and supervising their subcontractor when delivering the construction project. According to Schaufelberger (2009) the main contractor undertakes the project based on the client needs. They need to proactively seek for new projects and any available opportunities, in order to build new networks and creating a long-term relationship with other industry’s player. Contractor also will be involved in training owner’s personnel about the operation of the building systems and may be required to provide maintenance during post-construction.

Main contractor has their own field of specialization such as building industry, commercial, industrial and for mega project. The main contractor would prepare budget and planning schedule right from the design phase until the completion inspection of the project. The main contractor normally will liaise with all the consultants when there is issue aroused. This is to ensure the project can complete within the given time, under designated cost and following all the required specs for a good quality end product.
2.4.4 Sub-Contractor

Malaysian can witness the booming in our nation’s construction industry when numerous projects can be seen ongoing including mega project such as Mass Rapid Transit (MRT) project. Most major construction works at site are performed by the subcontractor and the main contractor roles has become limited in the execution of work at site (Andreas et. al., 2009).

Blomback and Axelsson (2007) have explained that main contractor would select the subcontractor through bidding process. Awarding a project to the right subcontractor is critically important as it may affect the overall project performance. The main contractor will need to do a background study on their financial status, technical ability and gather other information that may be helpful about their subcontractor.

The common practice when selecting a subcontractor is through the ‘lowest bidding’, (Singh and Tiong, 2006) although when the main contractor is very well aware about problems that may arise later, particularly on issue regarding poor quality of workmanship and low productivity. This also can avoid claims and disputes. Thus, the main contractor has to do a list of supplementary selection criteria such as looking at its past performance, financial status and team working capacity that will give more impact on the final output performance of the main contractor.

According to Aslan et al. (2008), there are some factors that need to be taken into consideration before selecting subcontractor that includes:

a. Subcontractor’s capacity of resources
b. Their past performance records
c. Company reputation and,
d. the ability to complete the work on time.

A good integration between the subcontractor and the main contractor could assist in many aspects like timely completion, improved quality and at the same time can help in improving environmental issues, health and safety.
2.4.4.1 Types of sub-contractor

There are two types of subcontractor:

a) **Domestic subcontractor**

A domestic sub-contractor is any sub-contractor, other than a nominated-subcontractor, that the main contractor sub-contracts to carry out part of the works. The work of the sub-contractor is the responsibility of the main contractor as far as the contract between the main contractor and the client is concerned (Cheng Ying, 2010).

Cartlidge (2009) had explained that most domestic subcontractors are normally appointed directly by the main contractor. Domestic subcontractor will carry out the works on behalf of the main contractor and basically, they will do all the general works. Hence, the scope of works of a domestic subcontractor includes all the works stated in the subcontract in accordance with order from the main contractor.

b) **Nominated subcontractor**

Definition of nominated subcontractor according to Cheng Ying (2010) is any merchant tradesman specialist or other person, firm or company that is nominated in accordance with the Contract to be employed by the Contractor for the execution of work or supply of goods materials or services for which Prime Cost has been inserted in the Contract or ordered by the Engineer to be employed by the Contractor to execute work or supply goods materials or services under a Provisional Sum.

The nominated subcontractor is normally appointed by the project stakeholder or directly through client, unlike the domestic subcontractor. Nominated subcontractor does not need to report progress to the main contractor since they do not have a formal contract with the main contractor and their payment is paid directly by client (Cartlidge, 2009).
2.5 Successful project implementation

A successful Project general definition is meeting the goals and objectives as stated in the initial project plan. A project is considered success when the project had successfully accomplished its technical performance, maintained its schedule, and remained within budgetary costs. The success of a project also can be defined from several factors such as the competencies of the project leaders, characteristic, skills, leadership concept and their personalities in order to produce great outcome (Ogunlana, 2011).

According to Kerzner (2009), a success project has always been defined as the ability to complete the project within the time constraints, cost and performance for overall outcome productivity. However, the cliché definition has been modified to fulfill the requirements in order to be considered as successful as listed below:

a. Within the allocated time period
b. Within the budgeted cost
c. At the proper performance or specification level
d. With acceptance by the customer/user
e. With minimum or mutually agreed upon scope changes
f. Without disturbing the main work flow of the organization
g. Without changing the corporate culture

According to Muller and Turner (2007), every project has different criteria and the public judgment on the successful of a project is merely depending on its personal objectives. To one person, the project may be considered as success. However, another person may have a different perspective that considered the project as a failure.

2.6 Relationship issues between main contractor and sub-contractor

Metri (2005) in his study mentioned that every project is different in situation and condition for example; personnel characteristics, construction productivity, types of material use, weather condition as well as difference in terms of required time and
project cost. Furthermore, the uniqueness in construction industry has always been related to its nature of uncertainty. Most problems that are commonly found in construction projects are contractual issues, time and cost overrun, project delay, trust issue, lack of quality, lack of communication, contractor’s financial problems, changes in material and labor cost, conflict of scheduling and planning, lack of safety, incomplete working drawing, shortage of construction materials, shortage of skilled labors, termination of work, incorrect pricing and act of God factor (force majeure).

2.6.1 Contractual issues

Subcontracts are often used in most construction works so as to meet the target and demand from the owner of the project. According to Huang et al. (2008), most of the contracts awarded to the subcontractor contains several contracting issues that will cause problems between the main contractor and the subcontractor when executed on the site later. Improper project management either by the main contractor or the subcontractor may lead to the interface problem between both parties. The issues will get worse if the contract letter is incomplete.

Most awarded subcontracts do not have formal discussion between the contractor and the subcontractor. The problem normally happens when the involved parties make or execute the contracts. Volkov et al. (2008) in his studies stated that there are several contracting problems that are commonly emerged in the contract execution such as unclear/missing details in the drawing, incomplete contract, changes in design and so forth. This may increase the probability of a conflict after construction work has begun.

2.6.2 Time overrun and cost overrun

One of the most significant issues and often occurred in most construction project is time overrun. According to Sweis et al. (2008) time overrun occurs when a project exceeded the original completion time as per contract or the project execution is beyond the actual deadline as agreed by other involved parties due to unavoidable or reasonable excuse (Endut et al., 2006; Marzouk and El-Rasas, 2014). The issues with time and cost overrun will give an immediate effect to the owner and the stakeholder
of construction project (Moura et al; 2007). The five main reasons that lead to this problem as listed by project owner are incomplete drawings, poor planning process, poor leadership that lead to late decision, increase in the materials cost and excessive change orders (Cox, 2007).

According to Endut (2008), when there is a time overrun, it will lead to cost overrun as well since these two are interrelated factors. Ramanathan et al. (2012) mentioned in his studies, the parties that suffered the most when the project encountered time and cost overrun is the owner/stakeholder of the project. Clients and stakeholder will keep facing the same issues every time since this problem seems to be unavoidable in most construction project. This will lead to more problems that is not favorable to the clients/stakeholder such as continuous financial waste, project completion delayed, trust issue, and most importantly low quality and productivity of the product (Ramanathan et al., 2012). The low productivity leads to relationship problem between main contractor and subcontractor.

2.6.3 Delay in project completion

Another common problem that can be found in construction industry is project delay (Enshassi et al., 2009). Delays in completing a construction project can be categorized as a global issue as it happens across the world and leaves a significant financial impact on the owner and the contractor. Some are able to resolve the disputes that arise out of delays, but in often cases, it may fall to the courts or arbitrators to determine which party or parties, if any, are responsible for the delay and which party or parties, if any, must bear the increased costs caused by the delay.

Delay in payment as explained by Ye and Abdul Rahman (2010) normally comes from the delay in issuing certification by involved parties in the construction project. The client or owner might hold the approving of payment issues due to certain reason that arises by the parties that are involved in the project. As an example, a delay in payment by the clients to the contractor will cause in late payment issues to the subcontractor by the main contractor. The low productivity leads to relationship problem between main contractor and subcontractor.
2.6.4 Trust issues

Trust is extremely difficult to elaborate, especially on behavior of trust in a construction project relationship from a holistic view. According to Mouzas et al. (2007), trust is necessary in every relationship management concept. According to Ha’kansson et al. (2008) trust is a necessary requirement that needs to be built in every relationship since not all aspects can be controlled by contract. Trust has to be built slowly between parties that will gradually develop and mature as time goes by.

The main contractor has to put trust on the subcontractor that will execute the work mainly on task that involves expertise or required specific skills (Ogunlana et al., 2007). The success of the project will depend upon the productivity and the selection of subcontractor with good attitude to execute their portion of works. The relationship between the subcontractor and the main contractor will also prosper for the better. The low productivity leads to relationship problem between main contractor and subcontractor.

2.6.5 Poor construction work quality

Quality is a set coordinated to control all the activities in construction industries to provide the effectiveness and the efficiency of the construction performance. According to Wei (2012), there is a difference in the definition of quality control between manufacturing sector and construction sector. Quality output is fundamental for all sectors particularly in the construction industry as it is hard to achieve and requires a special quality control technique. A good plan and systematic management by the construction company will improve the construction quality to meet the client requirement (SIRIM, 2007).

Huang et al. (2008) mentioned that most construction problems are due to the lack of experience that will eventually lead to poor flexibility and quality from the adaption of the new environment. When the main contractor is awarded with the construction contract, they will perform their construction work portion while specialist required work will be done by the subcontractor (Pheng et al., 2005). In normal practice, experienced main contractor will make less mistakes when performing the construction works. Whenever either the main contractor or the
subcontractor makes a mistake while constructing the project, it will affect the work of the other party especially when the scope of works is related to quality factor. However, most poor construction quality occurs due to the lack of proper communication. The low productivity leads to relationship problem between main contractor and subcontractor.

2.6.6 Lack of communication

Communication is defined as getting the receiver and the sender tuned together for a particular message (Imtiaz and Ibrahim, 2005). Communication happens when one party transfers some understandable data to the other party. According to Huang et al. (2005) communication usually includes the exchange of thoughts, opinions, sentiments, facts, and information between two or more persons. Receiving a feedback is very important as it assures that the message has been properly conveyed to the receiver.

Most construction project that experiences lack of communication issue will lead to poor project scheduling and planning. This will result in lack of project management and can cause a critical problem to the quality of end product. According to Briscoe et al. (2007), for a smooth flow of information exchange, an effective communication system is required as it can help to clear any misunderstanding or integrity of message conveyed, to receive proper response and feedback from the other party. Good communication with proper coordination are critical in construction to avoid any possible problems that may arise in any construction project. The need for communication and coordination drives many of the contract terms to acquire notice of claims and complete information on the cost and time impact at an early stage.

Communication is critical during this three stages namely, the bidding process, in preparations to proceed with the project and also during commencement of the construction work. Communication about problematic construction work has to involve various parties and the flow comes from all directions between the owner and the architect. Information received from them will be delivered to the main contractor and shared to both subcontractors and suppliers, and to or from third party participants. Any problems on site must be reported once it appears by the contractors and the suppliers to the architect and the project owner. Information that received afterward needs to flow back through the main contractor to the owner and architect to minimize
possible delays in work completion. It is also important for both suppliers and subcontractors to have a two-way communication through the main contractor.

However, some relationship problems in the construction industry stem from the lack of trust and ineffective communication between the project participants especially when subcontractor is not integrated into the main alliance (Huang et al., 2008). A prompt and clear communication can reduce any potential future problems that may arise, and this is only possible when there is a proper coordination among all parties that include contractors, subcontractors, and suppliers. The lack of communication can lead to relationship problem between the main contractor and subcontractor.

2.6.7 Contractor financial problem

Construction project will always be linked to payment problems. An issue that is not new, in fact has been reported in most construction projects. According to Morton (2008), a deteriorating in world economy has worsen the issue and has caused the main contractor to delay the payment to their subcontractor. The main reason would be to protect the main contractor’s cash flow on expenses of subcontractor.

Furthermore, the client also tends to hold payment from the contractor’s claim. In most cases, late payment is normally due to the lack of adequate supporting documentation, different specifications from original plan and on site, as well as payment rules clauses that allow the main contractor to delay the subcontractor payment (Bassam, 2007). These are among the tricks that the main contractor always use to hold back the subcontractor’s payment. Consequently, a conflict may occur between the contractor and his subcontractors that can lead to relationship problem between the main contractor and subcontractor.

2.6.8 Changes in materials and labor cost

Changes in material and labor cost represent the largest element of any construction project (Ogunlana, 2007). Efficient utilization of labor, material and equipment are the examples of good project management in construction. Improvement of labor productivity should be a major and continual concern of those who are responsible for
cost control of constructed facilities. Activities in material handling require special attention to allow cost reduction including procurement, inventory, shop fabrication and field servicing. According to Bramble (2011), the main contractor or subcontractor will experience loss instead of making profit if both parties make a mistake during the cost estimation and pricing, in particular for material and labor cost. The low productivity leads to relationship problem between main contractor and subcontractor.

2.6.9 Conflict of scheduling and planning

Planning includes what type of activities involved and how to conduct the activities, while scheduling focuses on when will the activities take place and who will be in charge. The purpose of scheduling and planning is to ensure a smooth project flow and at the same time, it also serves other purposes. Scheduling and planning started with the owner and the architect, and later expanded with the contractor, the subcontractors and the material suppliers. Coordination between the team is crucial in conducting all the activities (Huang et al. 2008). Bragadin et al. (2015) in his studies stated that a good construction planning and scheduling does not guarantee the success of the project but it can be a good guideline for everyone. A successful project planning can save client from overspending their money and reducing the total project cost as well as capable to meet the quality as required by clients.

Poor project scheduling can also cause a conflict between the main contractor and the subcontractor during the project construction. The same issue is also found among the subcontractors. In this case, the main contractor roles will interface into this aroused issue with the subcontractor so that it will resolve as soon as possible before any other issue like delay arises that will affect the relationship (Bassam, 2007). Idrus et al. (2011) have explained that most of the delays in schedule occur because of the main contractor does not make thorough inspection and recognized with their subcontractor progress of works. Hence, a two-way communication between the main contractors and the subcontractors need to be done and a discussion is required in order to identify the roots of the problems.
REFERENCES


Marco A. Bragadina, and Kalle Kahkonenb (2015). Safety, space and structure quality requirements in construction scheduling


Schaufelberger J (2009), Construction Business Management: Prentice-Hall.


