

Need of risk management practice amongst bumiputera contractors in Malaysia construction industries

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Abstract. Malaysia construction industry has been growing continuously with double-digit growth for the past two decades. There are many issues surrounded the industry such as delay in delivery, cost overrun, quality and safety. In bumiputera contractor's context, the literature review found that 32 issues were encountered in the construction project. These issues can be handled properly with the application of risk management. According to previous researchers, application of risk management in Malaysia construction industry is at the low level where it is implemented in traditional ways that are brainstorming and checklist. These were due to lack of knowledge, the high cost of hiring experts and avoiding extra cost. Besides that, this study also intentions to analyse the risk categories in the construction industry as well as identify risk management process to resolve the construction issues. Hence, this paper presents issues engulfed by Bumiputera contractors which can partly be resolved by applying risk management practice in carrying out the construction activity. This may inspire the contractors to apply the risk management practice in ensuring the success of their construction project.

1. Introduction

Risk management plays a vital role in the construction industry to remove or reduce the negative impact because there are many risks encountered in construction project particularly [1]. In Malaysia construction industry, only a few companies and industrial practitioners apply risk management during handling project [2].

According to Alkaf [3], the construction industry is usually riskier because of the complexity in coordinating various activities compared to other industry activity such as manufacturing, agricultural, and mining. This can be proved by the data prepared via Malaysia Department of Occupational Safety and Health [4] shows that five years of average mortality for this industry is 99 employees per year (from 2011 to 2015). Death rate per 100,000 construction workers by 2015 is 10.94, higher than the average death rate for five years (2011-2015) which is 8.17. The trend of the deadly injury of construction workers shows an increase since 2012, and 140 construction workers have died on the year 2015, the highest recorded since 2001 and the highest in the 21st century. Thus, the effective risk management should be part of the construction project organizational culture for allow project going competently, enhancing productivity and bring greater rewards to project performance [5, 6]. Besides that, stakeholder and project team of the construction projects will gain benefits from the effective risk management [7]. In the construction projects, define contractors are the most powerful and carry



ultimate responsibility amongst stakeholder [8]. Contractors also are considered as one of the main parties to ensure project success [9, 10].

In Malaysia context, contractors are separated into two groups which are bumiputera and non-bumiputera. It is mandatory for all construction companies in Malaysia, regardless of whether they are bumiputera or non-bumiputera, local or foreign contractor to register with the Construction Industry Development Board of Malaysia (CIDB) before they undertook any tendering capacity and paid up capital [11]. Registering as bumiputera contractor must require the majority of shares (at least 51%) owned by Malays/bumiputera and the majority (at least 51%) of the workforce in the company are Malays/bumiputera and also awarded bumiputera status by Contractor Service Centre (PKK) [10]. Study by Rahman dan Rahmat [10] indicates that bumiputera contractors are predominantly facing failure because of the inadequate planning, poor site management, inadequate contractor experience, lack of financial management, problems with subcontractors, lack of construction materials and machineries, labour supply, lack of communication among parties and mistakes during the construction phase. These issues may arise due to the lack of implementing a systematic risk management because finding by Abdul-Rahman states that implementation of risk management process in Malaysian construction industry is still at a low level [12]. Therefore, contractors have to reconsider their approach to risk within their project and organization via implementing a good risk management practice amongst bumiputera contractors during handling the construction projects as it will able to anticipate the occurrence and impact of negative events which may affect the overall performance of the projects [13].

2. Category of risk in construction industry

Risks associated with construction industry can be categorized in numerous methods and this study classified the risk categories into four (4) main groups which are financial risks, logistical risks, contractual risks, and managerial risks as shown in table 1.

Table 1. Risk main groups in construction industry.

Risk Category	References*									
	A	B	C	D	E	F	G	H	I	J
1. Financial	*	*	*	*	*	*	*	*	*	*
2. Logistical	*	*	*	*	*	*	*	*	*	*
3. Contractual			*	*	*	*	*		*	*
4. Managerial	*	*	*	*	*	*	*	*	*	*

* A[2], B[3], C[5], D[8], E[14], F[15], G[16], H[17], I[18], J[19]

2.1 Financial Risks

A literature review conducted in this study found ten (10) articles related to financial risk in the construction industry as in Table 1. In any organization, financial is one of the major risks which is very important and always need to be aware. This factor could have a substantial impact on the profit or loss [13]. Financial risks are due to lack of financial management, inadequate cash flow, mismanagement of cash flow, inaccurate project estimation, difficulty in securing the bank loan, fluctuation in foreign exchange, or late of the progress payment [3, 5, 14, 16, 19]. The financial risk can give impact to construction project such as poor of quality, workmanship, environment, safety and health that leads to project failure [18].

2.2 Logistical Risks

Logistics risks involve the planning and organizing process to ensure that resources are always available when they are needed, so that an activity or process happens effectively. Effective logistics

planning is essential for any construction project as it could provide significant benefits in efficiency and productivity that significantly reduce the overall cost of the project. An example of resources needed is transportation facilities, construction equipment spare parts, material, fuel and labour [2, 3, 5, 8, 14-19].

2.3 Contractual Risks

Based on the finding by Adnan et al., contractual risks caused by disagreements arising from flawed contract documents, inappropriate types of contract, improper tendering procedure or improper contractual clauses [13]. This contractual risk also including with design risk. For instance of design risks are incomplete design, design changes, design failure, and appropriateness of specifications [8, 15, 16, 19]. Three (3) main components must be considered and managed effectively to avoid contractual risks are quality, timeliness, and cost-effectiveness as well as sufficient knowledge on a standard of procedure.

2.4 Managerial Risks

Managerial risk refers to the failure of the organization or company in managing their management which eventually contributes to the negative impact of the company's reputation. Concurrently, it induces industrial relation problems [19]. Referred to Reddy, human resource management is one of the factors contributes to managerial risk [15]. This is due to lack of communication and attitude of participant [16]. Other contributors to managerial risks include natural disasters such as earthquakes, floods, cyclones and typhoons [20]. As a result, these natural disasters cause destruction of facilities, equipment, material and labour.

3. Construction issues faced by bumiputera contractors

Contractors are independent business organizations who have been awarded the project to produce the required end product as stipulated in the contract documents [21]. Also, Rahman and Rahmat defines contractors are someone who is legally given responsibilities to execute the awarded construction project as in the contract [10]. Alkaf et al. and Siang et al. previously reported that different project phases in the company resulted in different risk management practice and approach. Hence it exposed to different types of risks. In bumiputera contractor context, problem encountered by bumiputera contractor was summarized and clustered according to the suitability of the identified risk categories are shown in table 2.

4. Risk management in construction project

Risk management is important in managing a project being able to anticipate occurrence of events that may affect construction projects and define actions that can minimise their effects [22]. In PMBOK [23], risk management is one of the ten (10) components should ponder to ensure project success. The risk management comprises of six (6) elements which are plan risk management, identify risk, perform qualitative risk analysis, perform quantitative risk analysis, plan risk response and control risks as shown in figure 1. This process adopted from the PMBoK 2013.

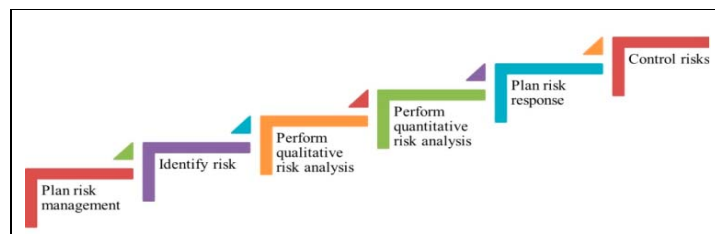


Figure 1. Risk management process [23].

4.1 Plan risk management

Plan of risk management is the planning process to conduct risk management activities via the approach of risk management implementation to ensure it is commensurate with the project requirement [5, 23]. It also involved of the past problems, which is a trigger change to future work as basic practices before work [24].

4.2 Risk identification

Risk identification is a process for identifying the type and effect of the risk that can affect the project and document their characteristics [2, 23]. The purpose of this process for uncovering any risks that could potentially affect a process [14]. According to PMBoK, it stated that stakeholders and experts on risk management are a participant in risk identification activities. This stakeholder involving project manager, project team members, risk management team, customers and other.

4.3 Perform qualitative risk analysis

Qualitative risk analysis is prioritizing risks by appraising and combining likelihood event and effect for further analysis [23]. Moreover, qualitative risk analysis is to select the most significant techniques for easier applied [24]. The purpose of this method is to enable project managers to decrease the level of uncertainty and to focus on high-priority risk as well as to reveal the risk attitude to a project team and other stakeholders.

4.4 Perform quantitative risk analysis

Perform quantitative risk analysis is analysing numerical process about the impact of identified risk on project goals [23]. Also measuring the probability and consequences of risk and estimating their implications for project objective [25]. On most projects, risk does not happen one at a time. Instead, they interact in groups, with some risk causing others to be more likely and some risks making others impossible. For the most part, qualitative risk analysis considers risks individually and allows development of a good understanding of each one (although grouping risks into categories can give some insights into patterns of risk exposure). However, it is sometimes necessary to analyse the combined effects of risks on project outcomes, regarding how they might affect overall time and cost particularly.

4.5 Plan risk responses

Plan of risk responses is an options and actions to increase chances and to decrease threats against project goals [23]. Necessary to identify the available approaches when responding on risks. Four possible approaches when risks respond are risk avoidance, risk transfer, risk retention and risk reduction [2]. Risk avoidance is known as risk elimination and it includes not undertaking an activity, which may carry risk. Risk transfer is assigned to other parties by using contracts or insurances. Risk reduction is a search for methods to reduce the likelihood of the risk. Risk retention refers to the loss/benefit of the gain of a risk is accepted when it occurs. Hence, this method giving benefit to addressing risks according to priority, inserting activities and resources into the financial plan, schedule and project management plan as necessary as identified by [23].

Table 2. The list of construction issues which can affect the performance of the Bumiputera contractors and these issues are clustered into four (4) risk categories which are identified as financial, workforce, contractual, and managerial.

Issues	References*										
	A	B	C	D	E	F	G	H	I	J	K
Financial Category											
1. Difficult to retain skilled staff because financial issues				*	*						
2. Challenge in obtain equipment at reasonable price				*		*	*				
3. Lack of financial management			*	*	*						
4. Lack of financial capital to start new project			*								
5. Inadequate cash flow to run the construction project	*		*	*	*		*				
6. Mismanagement of cash flow						*		*			
7. Difficult to purchase construction material		*					*				
8. Fluctuation of construction materials cost					*						
9. Improper or inaccurate project estimation			*								
10. Difficulty to securing bank loan			*	*	*						
11. Late of progress payment							*				
Workforce Category											
1. Lack of knowledge and skill on new technology approach			*								
2. Lack of entrepreneurial skills in managing construction projects								*	*		
3. Lack of knowledge and experience on construction					*		*				
4. Lack of apprenticeship to resolve problem				*	*						
5. Lack of local construction workers			*	*	*						
6. Difficulty to getting skilled workers				*	*						
7. Lack of machineries and construction material	*	*	*								
Managerial											
1. Lack of teamwork amongst parties					*						
2. Lack of communication skill			*				*				
3. Conflict between contractor and other parties	*							*			
4. Lack of opportunity to participate and getting new project									*	*	
5. Lack of networking regarding project procurement information								*			
6. Lack of handling workers using systematic approach	*		*								
7. Lack of good reputation based on the previous work record								*			
8. Inefficient of planning and management			*					*			
9. Lack of management								*			
10. Poor site conditions	*		*	*							
Contractual											
1. Changes in requirements and specifications during construction phase	*										
2. Lack of tendering technique			*								
3. Dependent on government allocated project						*		*			
4. Insufficient instruction and information in the contract specification, drawing and design			*								

* A[8], B[10], C[21], D[26], E[27], F[28], G[29], H[30], I[31], J[32], K[33]

5. Conclusion

There are many issues/challenges in ensuring the success of construction project which depends on the given time and cost with safety and quality as stipulated in the contract document. Hence, it is important to apply risk management practices in navigating the implementation of the project by identifying the real risk which leads to the project failure. Irrespective of the size of the project, by adopting the risk management the assurance of project success is quite certain. Bumiputera contractors should consider risk management practice because it provides guidance and awareness to control any risks in their construction project. Besides that, implementing risk management practice will increase the likelihood and impact of positive events and restrain the negative events in the project. This can be achieved by implement the process in project risk management. Therefore, the contractor that applied the recommended approach such as from PMBOK (project management book of knowledge) will be able to manage project better and offer assistance to bumiputera contractors in managing the awarded projects successfully.

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