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Avoiding vs. Accepting Risk: Evaluating the Risk Management of a Mosque Construction in Kuala Lumpur

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ABSTRACT

Risk management is a critical component in ensuring the successful delivery of construction projects, especially in the public sector, where resources, regulations, and stakeholder interests must be carefully balanced. This study examines the practical application of the *Garis Panduan Pengurusan Risiko Bagi Projek Kerajaan* (Guidelines on Risk Management for Government Projects) through a case study of a mosque construction project in Kuala Lumpur, focusing on two fundamental risk response strategies: avoidance and acceptance of risk. This study examines how risk can be identified, classified, and treated effectively during the construction phase. Data was collected through stakeholder workshops and document analysis, leading to the identification of project-specific risks, including design changes, late approvals, and religious considerations such as *qibla* direction alignment. The findings demonstrate that by applying the JKR guideline, certain risks can be proactively avoided through early planning, while lower-impact risks can be strategically accepted with monitoring. The study also highlights how unique characteristics of public religious buildings require tailored risk mitigation approaches. Ultimately, this research affirms the relevance and adaptability of the JKR (2017) guideline in guiding systematic risk management in government-funded construction projects and provides practical insights into future implementation.

Keywords: Mosque Construction, *Garis Panduan Pengurusan Risiko bagi Projek Kerajaan*, Accepting Risk, Avoiding Risk

1.0 INTRODUCTION

This study is grounded by a structured exploration of risk management techniques in construction projects, focusing specifically on differentiating between risk acceptance and risk avoidance. Utilising a mosque project as the case study, this study seeks to provide actionable insights into risk management strategies for similar public infrastructure initiatives. This case study illustrates the applicability of *Garis Panduan Pengurusan Risiko bagi Projek Kerajaan* (Guidelines on Risk Management for Government Projects) (JKR, 2017) to practical situations, emphasising its significance and efficiency for government construction projects where risk management and resource distribution are vital. This study has chosen to examine the construction of a mosque in Kuala Lumpur and apply these guidelines when assessing project risks. The project began in February 2017 and ended in February 2019. The purpose of this study is to provide a detailed analysis of the challenges and risks encountered during the construction of a mosque in Kuala Lumpur, as well as to assess the effectiveness of risk management measures. The analysis will also investigate whether this risk can be eliminated with rigorous project planning. The primary ideas in this

study are organised as follows: (a) Project Background – Introduction, (b) Risk Identification, (c) Risk Analysis, (d) Risk Assessment, (e) Discussion, and (f) Conclusion. Understanding this distinction is essential because it emphasises the challenges of managing large-scale projects and the significance of proper risk management. By analysing the risks encountered during the construction of the mosque in Kuala Lumpur, this study aims to provide important insights into the implementation of the *Garis Panduan Pengurusan Risiko bagi Projek Kerajaan*, offering a comprehensive understanding of how to evaluate and manage risks in construction projects.

2.0 LITERATURE REVIEW

2.1 Case Study Approach for The Mosque Construction Project Background

A case study is a qualitative research approach that allows for an in-depth investigation of a specific real-world phenomenon within its natural context (Yin, 2018). According to Stake (1995), case studies help researchers explore complex processes, interactions, and decision-making dynamics in a way that generalisable methods may not fully capture.

In this study, a mosque construction project is used to examine risk management in public sector construction projects, with a focus on two main risk management strategies: "avoiding risk" and "accepting risk". This case study approach enables an in-depth analysis of how risks are identified, assessed, and managed within a specific context. Using the *Garis Panduan Pengurusan Risiko bagi Projek Kerajaan* (JKR, 2017), this study demonstrates how risk mitigation measures, such as avoiding risks through preventive measures and accepting unavoidable risks, are applied in real projects. The mosque construction project also showcases risk management tailored to the specific needs of the project, providing practical contributions to risk management in future public sector construction projects.

2.2 The Mosque Construction Project Background

This study examines the complexities of risk management in a real-world context, specifically in public-sector construction projects, using a case study methodology. The mosque construction project provides a real-world example of how to use the *Garis Panduan Pengurusan Risiko bagi Projek Kerajaan* to recognise, evaluate, and reduce risks. This approach enables a thorough examination of the procedures and results within a particular setting, offering practical advice for similar initiatives (Choudhry & Iqbal, 2012).

The mosque construction project is located in Kuala Lumpur, near major transportation hubs. It was constructed to replace a smaller *surau*, which had become too small to accommodate the growing number of worshippers, particularly on Fridays and during Islamic festivals. The mosque is strategically located next to a high-density residential area, which includes an affordable housing project. It serves as a vital religious and community hub, catering to the growing population in the surrounding areas.

2.3 Risk Management

Large infrastructure projects hold national significance and are intricate. As a result, effective management of the risks associated with these projects is critical (Liu *et al.,* 2022). Risk means the impact of uncertainty on the objective (JKR, 2017). Risks can be human-caused or natural, and their consequences can be quite severe; therefore, it is necessary to have measures in place to overcome these risks (El Khatib *et al.,* 2022). Project risk management encompasses the risk management planning process, risk identification, analysis, and risk treatment actions, including risk review during the project (Project Management Institute, 2013). When

implementing a project, project personnel must be prepared to handle any risk that may arise. Therefore, to ensure that there are no issues throughout the project's implementation, a decision must be made regarding whether to accept, reject, treat, or share the risk with other parties. Due to the scope limitation, this study focuses specifically on accepting risk and avoiding risk during the construction phase and assesses the ability to eliminate such risks through careful planning.

2.4 Accepting risk

Accepting risk involves making a conscious decision to accept the possibility that an event may occur. Some risks are so significant that it is not feasible to consider transferring or reducing the event (for example, an earthquake) (Gray & Larson, 2021). The project owner is willing to take the risk because the likelihood of this occurring is incredibly minimal.

2.5 Avoiding risk

Avoiding risk involves adjusting the project schedule to eliminate the situation or risk (Grey & Larson, 2021). In all risk mitigation techniques, risk avoidance is typically costly; however, it has the advantage of significantly reducing the cost of recovery and downtime (Snedaker & Rima, 2014).

Table 1: The Key Differences Between Accepting Risk and Avoiding Risk. (Snedaker & Rima, 2014)

Aspect	Risk Acceptance	Risk Avoidance
Definition	Acknowledging a risk without taking immediate action to mitigate it.	Taking proactive steps to eliminate the risk entirely.
Approach	"Do nothing" strategy; accepts the possibility of the risk occurring and manages its impact when it happens.	Preventive strategy: addresses the root cause to ensure the risk cannot occur.
Cost	Least expensive in the short term but can be very costly in the long term if the risk materialises.	Most expensive upfront but reduces long-term costs of recovery or downtime.
Rationale for Use	Used when the cost of mitigation outweighs the potential impact of the risk.	Used when the risk has a high likelihood and/or impact, justifying the cost of elimination.
Business Impact	Low cost initially, but financial and operational impacts can be high if the risk materialises.	Higher upfront investment reduces the likelihood and cost of disruptions if the risk occurs.
Long-Term Implications	Reactive - may lead to significant expenditures if the risk occurs unexpectedly.	Proactive - minimises recovery costs and business downtime in the long term.
Feasibility	Often the default approach, especially for minor risks or resource-constrained organisations.	May not be feasible for all risks or businesses due to high initial costs or logistical challenges.
Decision Factors	Balances cost vs. benefit; suitable when the risk is low probability and low impact.	Balances cost vs. reward; suitable for high-impact or high-probability risks.
Risk Management Role	A legitimate option but requires understanding and acceptance of the potential consequences.	A comprehensive solution that provides certainty against the identified risk.

2.6 Distinction Between Avoiding Risk and Accepting Risk

The successful completion of construction projects depends on effective risk management, which requires a sophisticated understanding of tactics to mitigate potential disruptions. Acceptance risks and avoidance risks are two primary strategies in this area, and each serves distinct functions

in the decision-making process. To provide valuable insights for construction management, this study aims to define these risks and illustrate how they are identified in construction projects. Table 1 presents a comparison summarising the key differences between accepting risk and avoiding risk based on Snedaker and Rima's (2014) study.
The decision to accept or avoid risks is influenced by various factors, such as the project's environment, potential risk consequences, and available resources. Avoidance is crucial for significant threats that could jeopardise project goals, but acceptance might be appropriate for lesser risks if the costs of mitigation are not justified.

2.7 Guidelines for Risk Management Project

In project settings, different sources, such as technical issues, limited resources, rules, and environmental conditions, can lead to risks. Standard guidelines and frameworks are employed to navigate these complexities and manage risks effectively in a structured manner. This section explores three prominent frameworks for risk management in projects as below:

2.7.1 The Project Management Body of Knowledge (PMBOK)

The Project Management Body of Knowledge (PMBOK) is a comprehensive collection of guidelines, best practices, and standardised procedures that provide a foundation for project management across various fields and sectors. The PMBOK is a standard project management approach that is widely utilised in the United States and has acquired an international reputation (Jamali & Oveisi, 2016). Fundamentally, PMBOK is a compilation of project management procedures and subject areas that are widely regarded as best practices in the field of project management (Jamali & Oveisi, 2016). Since its initial publication by the Project Management Institute in 1983, the PMBOK has undergone multiple updates and adjustments to meet the changing demands of the project management industry. The seventh version of the PMBOK, released in 2021, represented a substantial change from its predecessors and was developed in response to the rapid changes in the professional world, including innovative approaches, rapid technological advancements, and shifting market dynamics (Zambrano *et al.,* 2024). Figure 1 shows the PMBOK7® structure adapted from PMI 2021. There are two primary sections in the PMBOK7.

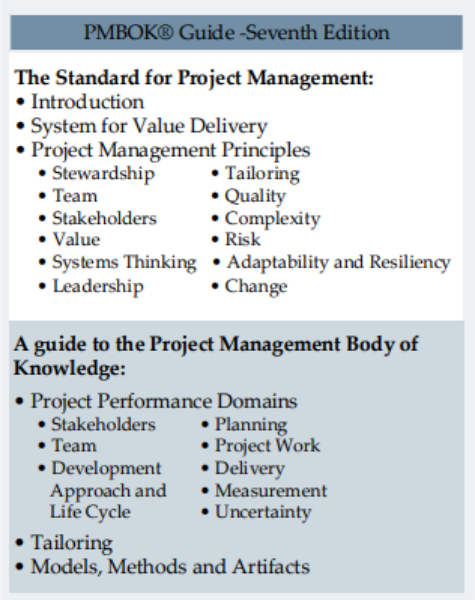

Fig. 1: PMBOK7® structure (Adapted from: PMI 2021; Zambrano *et al.,* 2024)

First Section: The project management standard describes the guidelines that stakeholders and project experts should follow. Project concepts, portfolios, programs, products, and business operations are among the organisational and strategic project elements that comprise the value delivery system (PMI, 2021).

Second Section: The PM Body of Knowledge Handbook outlines key project management tasks that are compatible with various positions. These functions are divided into eight project performance domains, which are customised based on project requirements (PMI, 2021). Every domain outlines a set of anticipated results.

2.7.2 ISO 31000

The international ISO 31000 standard provides guidelines and concepts for risk management (International Organisation for Standardisation, 2018). In 2009, the first edition of ISO 31000 was released. It was later revised and republished in 2018. The understanding that risk, which is defined as the impact of uncertainty on goals, is an essential component of any company operation and needs to be proactively managed lies at the core of this standard (Wirahadi & Pasaribu, 2022). The capacity of ISO 31000 to integrate risk management practices throughout an organisation, allowing for a comprehensive and coordinated approach, is one of its main advantages (Muzaimi et al*.,* 2017). The ISO 31000 standard outlines a systematic approach to risk management that begins with setting the context, identifying risks, assessing and analysing them, and then employing various tactics to address the risks (Stichler, 2013). The methodical application of rules, procedures, and practices to tasks such as consultation and communication, setting the context, and evaluating, treating, monitoring, reviewing, documenting, and reporting risk are all part of the risk management process. Figure 2 illustrates this procedure:

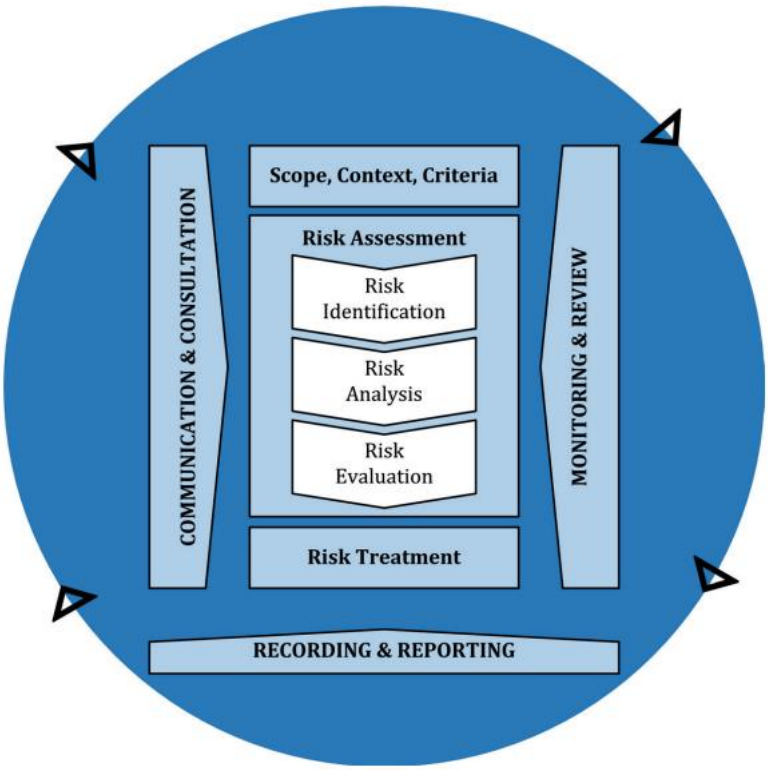

Fig. 2: The process of risk management (ISO, 2018)

2.7.3 *Garis Panduan Pengurusan Risiko Projek Bagi Projek Kerajaaan*

This guideline*, Garis Panduan Pengurusan Risiko Projek Bagi Projek Kerajaan*, produced by Jabatan Kerja Raya, is published as a guide or reference for all government officials in implementing project risk management. Risk management in government projects aims to ensure that the level of risk, uncertainty, and existing opportunities are effectively managed so that the project is completed successfully within the stipulated time, cost, and quality. This guideline was developed to provide a systematic and proactive approach to analysing and assessing project risks that are known with certainty earlier in the project life cycle. This comprehensive risk management guideline was developed by the Unit Penyelarasan Pelaksanaan (ICU) of the Jabatan Perdana Menteri (JPM) in collaboration with the Jabatan Kerja Raya (JKR).

Based on Figure 1, the Ministry (the project sponsor) oversees setting up the project site, determining the primary project scope, and providing a sufficient budget at the outset of the project (Activity 0) before transferring it to the implementing agency. Strategic risks at the program or portfolio level should be identified by the Ministry (or sponsor). During the project handover, both parties agree on the project's location, scope, and project brief during the planning phase (Activity 1). Here, the Project Manager identifies risks in all project phases, logs them in the Risk Register, and creates the Project Risk Management Plan (PRMP) to initiate project risk management operations. From Activity 1 to Activity 5, the Project Manager oversees and manages the implementation of all documented risk treatments until the project is completed. Regular reports on the state of risk management are made, and the Risk Register is updated and evaluated on a regular basis. A final risk report is created to wrap up the project's risk management tasks once it is finished and turned over to the Ministry (or sponsor). This report includes recording lessons learned for potential future improvements.

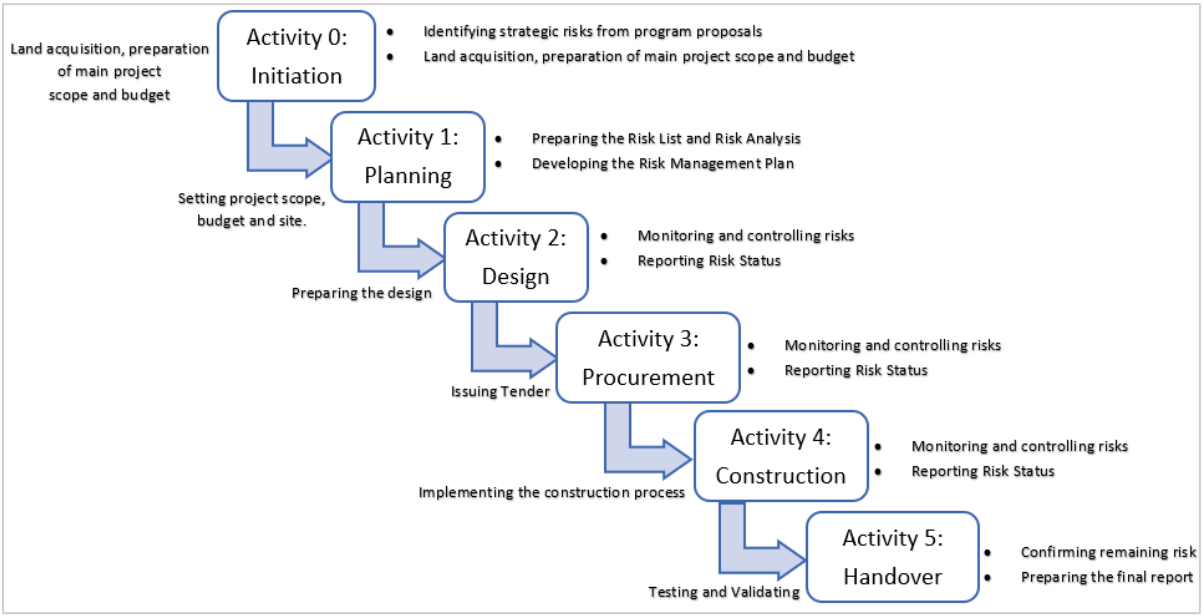

Fig. 3: Risk Management Stages in Project Life Cycles
(Source: Jabatan Kerja Raya, 2017)

2.7.4 Conclusion and Justification

This study concluded that *Garis Panduan Pengurusan Risiko Projek Bagi Projek Kerajaan* is the most effective method for risk management in this construction project, based on the analysis of the three risk management frameworks. The rationale behind this selection is presented in Table 2:

Table 2: The Rationale Behind the Selection of *Garis Panduan Pengurusan Projek Bagi Projek Kerajaan*

Aspect	Details
Guideline Selection	The *Garis Panduan Pengurusan Risiko Projek Bagi Projek Kerajaan* was chosen as the most suitable for government projects in Malaysia.
Guideline Prioritisation	Specifically designed to address unique challenges in Malaysia's public sector.
	Aligned with local laws and policies.
	Provides practical steps for compliance and transparency.
Development by Local Authorities	Developed by JKR and ICU JPM, two key technical bodies in Malaysia.
	Leverages expertise in infrastructure development, construction, and governance.
Strengths of the *Garis Panduan*	A practical framework tailored to local needs.
	Focus on project-specific risks, including environmental and infrastructural factors.
	Enhances accountability through clear risk monitoring and reporting structures.
	The prescriptive approach ensures usability even by less experienced teams.
Benefits of Using the Guideline	Aligns national priorities with best practices.
	Reduces risks of project delays, cost overruns, and non-compliance.
	Contributes to the successful implementation of government initiatives in Malaysia.
Conclusion	The *Garis Panduan Pengurusan Risiko Projek Bagi Projek Kerajaan* is the most relevant and effective framework for Malaysia's public sector.
	Endorsed by JKR and ICU JPM as a strategic tool for ensuring project success.

3.0 METHODOLOGY

This study adopts a case study approach, utilising *Garis Panduan Pengurusan Risiko Projek Bagi Projek Kerajaan* (JKR, 2017) for the mosque construction project to identify risks during the construction phase.

3.1 Data Collection

3.1.1 Brainstorming Workshop with Stakeholder

Data Collection: A risk management workshop for a mosque construction project in Kuala Lumpur was conducted by a government agency among the project owner, consultant and contractors to deliberate on the risk factors and risk management plan to be implemented during the mosque construction stage. Brainstorming activities are employed to generate risk assessments based on project context, problem, and specific issue. This brainstorming session is conducted interactively, allowing all stakeholders to contribute based on their perspectives on the project.
During this workshop, stakeholders identified a range of potential risks specific to the mosque construction project. The unique characteristics of the project, which significantly influenced the identification of these risks, include:

Schedule Risks: Delays in consultant approvals for RFI (Request for Inspection) and materials leading to work schedule changes.

Financial Risks: Increasing construction material prices and payment delays by the client.

Human Resource Risks: Shortage of skilled foreign workers, changes in the workforce by consultants, and challenges in employee replacement.

Technical Risks: Design changes, delays in approvals from local authorities and inaccuracies in *qibla* direction.

Environmental Risks: Limited access to the construction site and pollution (noise and dust) affecting nearby residents.
Several project-specific factors influenced the identification of these risks, including:

Urban Location: The project's setting in a densely populated area of Kuala Lumpur posed site logistics challenges, including traffic congestion, limited access, and community coordination.

Multiple Subcontractors: Coordination among various subcontractors working on different aspects of the construction posed risks related to workflow integration and quality consistency.

Regulatory and Environmental Constraints: Compliance with strict regulatory requirements and environmental protection standards introduced risks of project delays and approval complications. Each identified risk was documented in detail, taking into account the likelihood of occurrence and its potential impact on project objectives. This structured approach ensured that the risk management plan would effectively address the specific challenges of the mosque construction project.

3.2 Data Analysis

3.2.1 Presentation of Risk for Discussion

Risks identified during the workshop were presented for further discussion among stakeholders. The purpose of this discussion is to gain a deeper understanding of each risk, estimate its impact and likelihood, and develop appropriate mitigating measures.

3.2.2 Risk Categorisation

Data gathered from analysis and discussion is used to categorise risks into the relevant categories. This procedure utilises the framework described in JKR (2017), which includes risk analysis to determine the likelihood and impact of a given event.

3.2.3 Risk Assessment

The risk level for each identified risk was determined using a risk matrix, as outlined in the JKR (2017) guidelines (Table 3). This matrix combines the likelihood of a risk occurring with the potential impact of that risk on project objectives (cost, time, and quality).

- **Likelihood**: Measured based on the probability of risk occurring. The likelihood of each risk was assessed based on the probability of its occurrence, using the likelihood scale provided in Table 2.
- **Impact**: The potential impact of each risk was evaluated in terms of its effect on project cost, time, and quality using the impact rating scale in Table 2.
- **Risk Level**: By combining the likelihood and impact ratings, the risk level for each risk was determined using the risk matrix. The risk matrix categorises risks into four levels: Extreme (E), High (H), Medium (M), and Low (L).

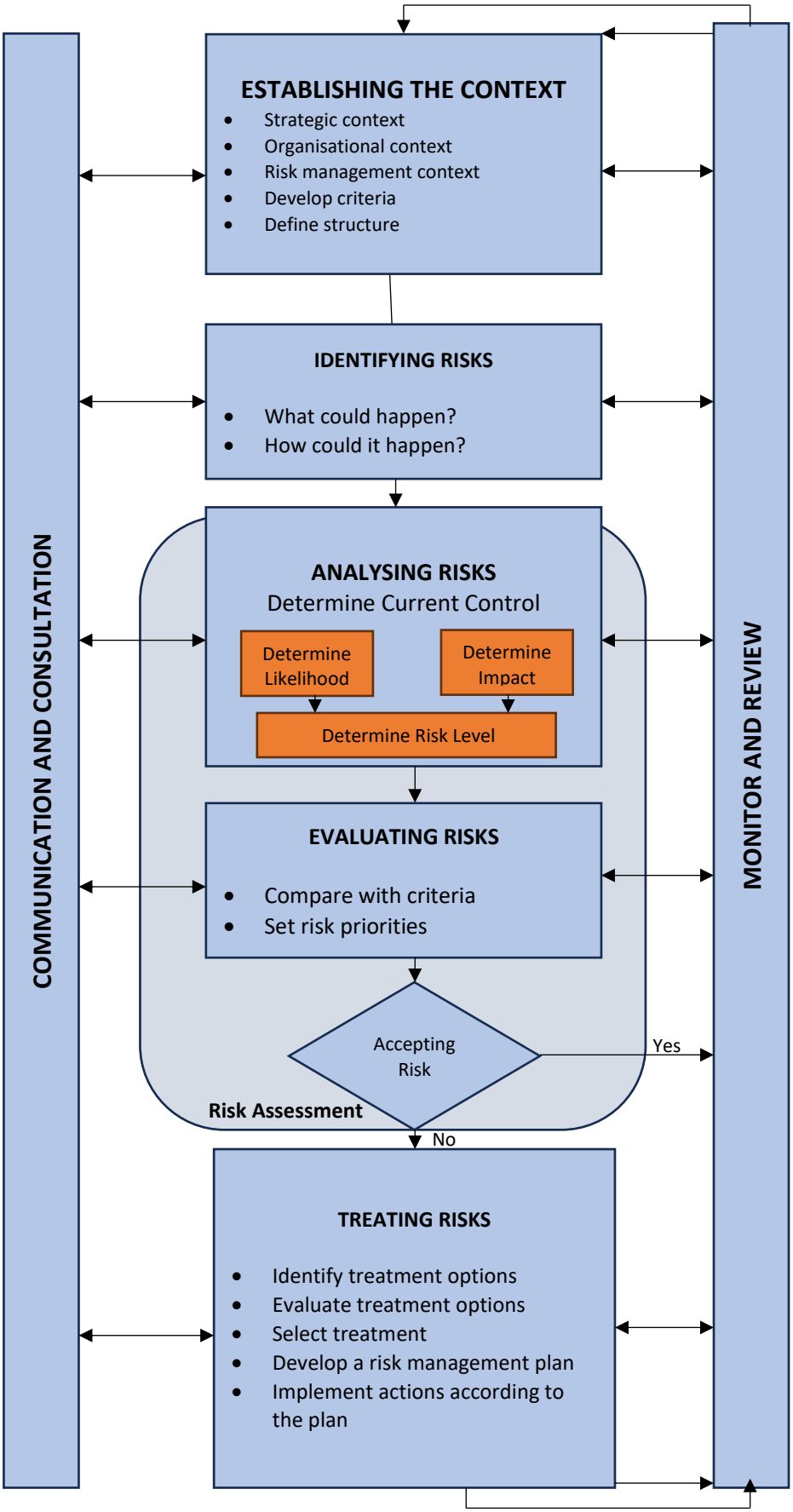

Fig. 4: Process of Risk Management
(Source: Jabatan Kerja Raya, 2017)

3.2.4 Proposed Risk Action Plan

For each risk, a mitigation action plan was developed, such as proactive measures. The results of this risk analysis were used to produce a risk management plan that aligns with the JKR (2017) guidelines. Following the determination of the risk level, risks were classified based on the JKR (2017) guidelines, which outline the appropriate risk response for each level.

- **Accepting Risk**: Risks with a Low or Medium risk level were classified as "Accepting Risk." According to JKR (2017), these risks are accepted without immediate treatment but are monitored and reviewed.
- **Avoiding Risk**: Risks that could be eliminated or significantly reduced through proactive measures were classified as "Avoiding Risk." This classification aligns with the JKR (2017) guideline to avoid risks whenever possible by taking actions to prevent them from occurring.
- **Significant Risk**: Risks with a High or Extreme risk level were classified as "Significant Risk." These risks require prioritised attention and treatment actions, as outlined in the JKR (2017) guidelines.

3.2.5 Monitoring and Continuous Improvement

Data analysis also included recommendations for ongoing risk monitoring throughout the project. This ensured that risks were managed proactively and that the selected strategies could be adjusted if necessary.

3.3 Reference to JKR (2017)

During the development of the risk management plan, the *Garis Panduan Pengurusan Risiko Projek Bagi Projek Kerajaan* was used as the primary reference to ensure that the risk assessment and action planning processes aligned with the established standards. Figure 4 shows the process of risk management by JKR (2017).

4.0 RESULTS

This study adopts a case study approach, utilising the *Garis Panduan Pengurusan Risiko Projek Bagi Projek Kerajaan* (Jabatan Kerja Raya, 2017) framework for the mosque construction project in Kuala Lumpur. This approach involves risk identification, risk analysis and risk assessment.

4.1 Risk Identification

Risk identification is the first step in the assessment process. The basic process involves reviewing the entire mosque construction to identify critical events that could prevent the project from achieving its objectives. All identified risks are documented in the risk register. Risks are identified by the team, including the client and the contractor, which enables the early detection of major issues and critical events that require attention to prevent adverse impacts or effects.

4.1.1 Technique and Tools

The tools and techniques used in the identification and treatment strategies for this project are brainstorming with stakeholders. A risk management workshop for the project was conducted by a government agency among the project owner, consultant and contractors to deliberate on the risk factors and risk management plan to be implemented during the

mosque construction stage. Table 3 listed risk categories to identify risk in this construction project by using guidelines from JKR (2017).

Table 3: Risk category to identify risk in a construction project (Jabatan Kerja Raya, 2017)

No.	Risk Category	No.	Risk Category
1.	Politics	10.	Technical
2.	Scope	11.	Environment
3.	Schedule	12.	Supply
4.	Financial	13.	Agency Relation
5.	Human Resource	14.	Organisation
6.	Quality	15.	Occupational Safety and Health
7.	Communication	16.	Social and Culture
8.	Other Source	17.	Integrity
9.	Law & Contract	18.	Natural Disaster

As a result of brainstorming sessions among project stakeholders and guided by the risk categories (JKR, 2017), risks were systematically listed based on the work breakdown structure (WBS). Figure 5 shows the risks identified for this project.

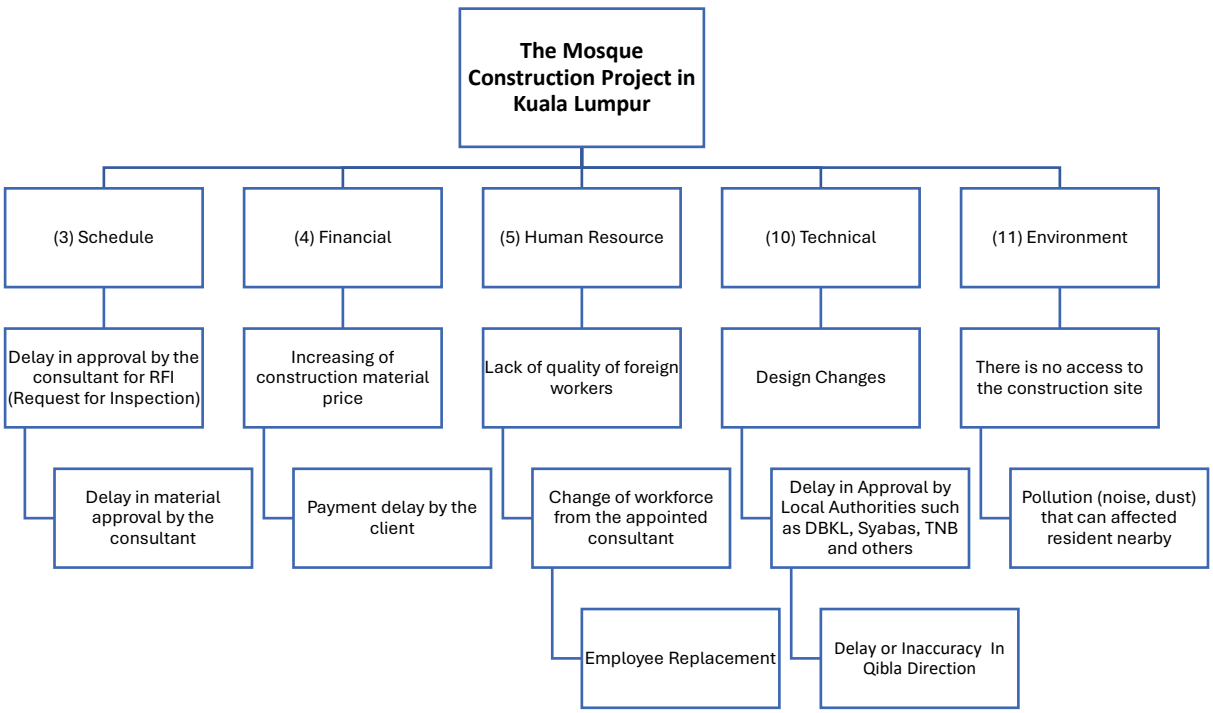

Fig. 5: All risks that were identified for the project

4.2 Risk Analysis

The project risk is analysed to determine the following:

i. The probability of the risk occurring.
ii. The rate of impact by risk on cost, schedule, quality, and other factors affecting the project's objectives, including its products.
iii. The most suitable risk owner.
iv. Potential risk impact on third parties such as projects and organisations.

The determination of the classification of two parameters (likelihood and impact) will determine the risk level for each event evaluated in **Table 4** and **Table 5**:

Table 4: The classification of two parameters to determine the risk level for each event.

Likelihood	Impact Rating
5. VERY HIGH: Almost certain to occur, expected regularly	**V. SEVERE:** Critical impact, severe disruption or cost implications, project viability at risk.
4. HIGH: Likely to occur, occurs frequently**.**	**IV. HIGH:** Significant impact, considerable disruption, or cost implications.
3. MEDIUM: Moderate chance of occurrence, not uncommon.	**III. MEDIUM:** Moderate impact, noticeable disruption, or cost implications.
2. LOW: Unlikely, but possible under rare circumstances.	**II. LOW:** Minor impact, minimal disruption, or cost implications.
1. VERY LOW: Highly improbable, almost negligible chance of occurrence	**I. NEGLIGIBLE:** Insignificant impact, negligible consequences.

The possibility/impact matrix, also known as Matrix Risk, as shown in Table 3 below, is a tool used to determine the frequency of an incident and the consequences that will be accepted. This matrix will be used to determine the risk level, namely Extreme (E), High (H), Medium (M) and Low (L).

Table 5: Matrix Risk (Jabatan Kerja Raya, 2017)

Matrix Risk							Risk Level	
LIKELIHOOD	5	H	H	H	E	E	E	**Extreme Risk:** Urgent action is needed
	4	M	M	H	E	E	H	**High risk:** could impact the project if it is not handled
	3	L	M	M	H	E	M	**Medium Risk:** If not handled, it will have an impact on time, cost, and quality.
	2	L	L	M	H	H	R	**Low risk:** acceptable; monitor only.
	1	L	L	M	M	H		
		I	II	III	IV	V		
	IMPACT RATING							

Therefore, all risks that were listed for this project during the building construction phase (**Figure 2**) were analyzed to determine the risk level for each risk. **Table 6** presents the risk analysis for each risk identified associated with this project. There are seven medium risks, three high risks and two extreme risks.

Table 6: The risk analysis for each risk identified

Ref. No (WBS)	Risk Event	Risk Category	Initial Risk Level		
			Likelihood	Impact Rating	Risk Level
1.1	Delay in approval by the consultant for RFI (Request for Inspection)	3	3	III	**M**
1.2	Delay in material approval by the consultant	3	3	III	**M**
1.3	Increasing construction material price	4	4	IV	**E**
1.4	Payment delay by the client	4	3	IV	**H**
1.5	Lack quality of foreign worker	5	3	III	**M**
1.6	Change of workforce from the appointed consultant	5	3	III	**M**
1.7	Employee Replacement	5	3	III	**M**
1.8	Design Changes	10	3	IV	**H**
1.9	Delay in Approval by Local Authorities	10	3	IV	**H**
1.10	Delay or Inaccuracy in *Qibla* Direction	2	3	V	**E**
1.11	There is no access to the construction site	11	2	III	**M**
1.12	Pollution (noise, dust) that can affect residents nearby	11	4	II	**M**

4.3 Risk Assessment

A review of project risks is being conducted to determine the necessary course of action. The first action is to organize the risks that have been analyzed by classifying the risk as one of:

a. Accepting risk: a risk that is currently accepted and does not require treatment but retained for review. The informed decision to accept the impact and the likelihood of a particular risk. (JKR, 2017); or

b. Avoiding risk: a risk that is considered non-existent after analysis and an informed decision not to become involved in a risky situation. (JKR, 2017); or

Based on **Table 6**, the risks that have been identified and analyzed will be evaluated to determine their classification, as shown in **Table 7**. Based on the risk assessment conducted, there are seven “accepting risks” and five “avoiding risks”.

Table 7: Risk assessment for the project

Ref. No (WBS)	Risk Event	Risk Category	Initial Risk Level			Treatment Action Plan	Risk Classification
			Likelihood	Impact Rating	Risk Level		
1.1	Delay in approval by the consultant for RFI (Request for Inspection)	3	3	III	**M**	-	Accepting Risk
1.2	Delay in material approval by the consultant	3	3	III	**M**	-	Accepting Risk
1.3	Increasing construction material price	4	4	IV	**E**	Monitor fluctuations in pricing, purchase materials before prices increase, engage in early bulk purchasing, consider price-locking contracts, and conduct regular market analyses.	Avoiding Risk
1.4	Payment delay by the client	4	3	IV	**H**	The contractor must ensure that the work progress claim is according to the schedule and follow the government circular.	Avoiding Risk
1.5	Lack of quality of foreign worker	5	3	III	**M**	-	Accepting Risk
1.6	Change of workforce from the appointed consultant	5	3	III	**M**	-	Accepting Risk
1.7	Employee Replacement	5	3	III	**M**	-	Accepting Risk
1.8	Design Changes	10	3	IV	**H**	Check all the drawings to ensure that all drawings are complete with no changes	Avoiding Risk
1.9	Delay in Approval by Local Authorities	10	3	IV	**H**	Early consultation with the local authority before work execution	Avoiding Risk
1.10	Delay or Inaccuracy in *Qibla* Direction	2	3	V	**E**	Submit the design to Pejabat Mufti and ensure they mark the *qibla* direction before starting the foundation work.	Avoiding Risk
1.11	There is no access to the construction site	11	2	III	**M**	-	Accepting Risk
1.12	Pollution (noise, dust) that can affect resident	11	4	II	**M**	-	Accepting Risk

5.0 DISCUSSIONS

In this section, this study will discuss related to the results of the study that will answer the objective of this case study, which are:

- To examine the distinction between avoiding and accepting risk in the context of a government construction project by applying the *Garis Panduan Pengurusan Risiko Bagi Projek Kerajaan* as a structured risk management framework.
- To assess whether identified risks can be effectively eliminated or mitigated through proactive planning and treatment strategies, as outlined in the *Garis Panduan Pengurusan Risiko Bagi Projek Kerajaan*.

5.1 Differentiate Between Avoiding Risk and Accepting Risk

To identify the type of risk associated with this project, a risk assessment process was conducted in Section 2.3. Several types of risk have been identified with the *Garis Panduan Pengurusan Risiko Projek Bagi Projek Kerajaan (*JKR*, 2017)*. **Table 8** shows the accepting risk that was identified for this case study:

Table 8: Accepting risk for the project

Ref. No (WBS)	Risk Event	Risk Category	Initial Risk Level			Treatment Action Plan	Risk Classification
			Likelihood	Impact Rating	Risk Level		
1.1	Delay in approval by the consultant for RFI (Request for Inspection)	3	3	III	**M**	-	Accepting Risk
1.2	Delay in material approval by the consultant	3	3	III	**M**	-	Accepting Risk
1.5	Lack of quality of foreign worker	5	3	III	**M**	-	Accepting Risk
1.6	Change of workforce from the appointed consultant	5	3	III	**M**	-	Accepting Risk
1.7	Employee Replacement	5	3	III	**M**	-	Accepting Risk
1.11	There is no access to the construction site	11	2	III	**M**	-	Accepting Risk
1.12	Pollution (noise, dust) that can affect residents nearby	11	4	II	**M**	-	Accepting Risk

These risks are categorised as accepting risk because, according to JKR (2017) guidelines, they fall within the medium risk level. In the risk management framework, risks are categorised as medium (M) and low (L) rated for monitoring purposes. Accepting risk implies that these risks are currently acknowledged and deemed acceptable without requiring immediate treatment. However, they are retained for ongoing review and assessment throughout the project lifecycle. This approach acknowledges that certain risks, while present, may not warrant immediate mitigation actions but still necessitate regular monitoring to ensure they do not

escalate into significant issues. By categorising these risks as accepting, project managers can allocate resources effectively, focusing treatment efforts on higher-priority risks while maintaining awareness of medium-risk factors to address them if their impact or likelihood changes over time. This proactive monitoring strategy aligns with best practices in risk management, allowing for a balanced approach to risk mitigation and resource allocation.

Table 9: Avoiding risk for the project

Ref. No (WBS)	Risk Event	Risk Category	Initial Risk Level			Treatment Action Plan	Risk Classification
			Likelihood	Impact Rating	Risk Level		
1.3	Increasing construction material price	4	4	IV	**E**	Monitor the fluctuations in pricing, purchase materials before the price increases, engage in early bulk purchasing, consider price-locking contracts, and conduct regular market analysis.	Avoiding Risk
1.4	Payment delay by the client	4	3	IV	**H**	The contractor must ensure that the work progress claim is according to the schedule and follow the government circular.	Avoiding Risk
1.8	Design Changes	10	3	IV	**H**	Review all the drawings to ensure that they are complete and have no changes.	Avoiding Risk
1.9	Delay in Approval by Local Authorities	10	3	IV	**H**	Early consultation with the local authority before work execution	Avoiding Risk
1.10	Delay or Inaccuracy in *Qibla* Direction	2	3	V	**E**	Submit the design to Pejabat Mufti and ensure they mark the *qibla* direction before starting the foundation work.	Avoiding Risk

Table 9 shows the identified risks categorised as "Avoiding Risks" based on the risk assessment process conducted for the mosque construction project. In this project, several risks have been proactively addressed to minimise their potential impact, aligning with Fennelly and Perry's (2017) description of avoiding risk as reducing risk exposure by eliminating or minimising the activities that lead to it. Although certain risks cannot be eliminated, these proactive measures aim to reduce the probability of these risks occurring or lessen their effects on the project.

The project team employed various strategies to avoid or mitigate the impacts of each risk, including early consultations with authorities, price-lock contracts, and rigorous adherence to procedural requirements. Below is an analysis of each risk event classified under "Avoiding Risk" and the rationale behind this classification, reflecting the preventive measures applied to minimise disruptions and enhance project continuity.

5.1.1 Risk 1.3: Increasing Construction Material Price

This risk is a common occurrence in construction projects and cannot be fully mitigated due to external market factors. Nevertheless, this risk can be mitigated by adopting industry-standard practices, such as purchasing construction materials in bulk at the start of the project or utilising price-locking contracts before material prices rise, especially for essential materials that have a history of price volatility. Therefore, the cost of building materials can be preserved until the project is completed.

5.1.2 Risk 1.4: Payment Delay by The Client

Payment delays can hinder cash flow and postpone project schedules. To prevent this, the contractor guarantees that claims for work progress are made in line with the project timeline and comply fully with government regulations and circulars. The risk cannot be eliminated because of potential external factors. However, active adherence to procedural requirements helps reduce the likelihood of payment delays.

5.1.3 Risk 1.8: Design Changes

To manage this risk effectively, the project team employed a proactive strategy focused on preventing unnecessary modifications during construction. This included thorough pre-construction checks of all design documents and implementing a "design freeze" to ensure completeness and accuracy before physical work commenced. This measure reduces the likelihood of disruptive changes during construction, enabling the project to progress efficiently and on schedule, consistent with the classification of "Avoiding Risk."

5.1.4 Risk 1.9: Delay in Approval by Local Authorities

Obtaining approvals from relevant authorities has become a significant concern in the project management process (Kasdi Abd Rahim et al., 2024). This risk is mitigated by engaging in early consultations with local authorities to prevent disruptions to the project timeline. By initiating dialogue well before construction begins, the project team can identify any regulatory requirements or address potential objections in advance, ensuring that all necessary approvals are in place. This proactive approach minimises the risk of last-minute regulatory hurdles and allows the project to proceed smoothly, classifying the risk as “Avoiding Risk.”

5.1.5 Risk 1.10: Delay or Inaccuracy in *Qibla* Direction

This risk arises from the possibility of delay or inaccuracies in verifying the *qibla* alignment before the construction process begins. The *qibla* direction is a fundamental requirement for the validity of prayer (*salah*), and performing prayer without facing the correct *qibla* renders the prayer invalid (Hamdani *et al.,* 2019). Therefore, inaccurate or late marking of the *qibla* direction can lead to structural modification works, causing delays and additional costs. This is a risk that is challenging to fully eliminate due to the involvement of external parties (Pejabat Mufti) and the need for precise on-site verification. However, this risk can be avoided by submitting the design to the Pejabat Mufti for early notification before the foundation work starts. Ensuring that the Pejabat Mufti conducts a site visit to verify and mark the *qibla* direction prior to the commencement of foundation work helps to avoid alignment errors. By implementing this measure, the risk of requiring structural modifications due to misalignment is minimised, ensuring the smooth continuation of the project.

5.2 Risk Elimination with Proper Planning

For the second objective, this study needs to identify whether risk can be eliminated or not. Although the risk analysis performed in this study identifies methods for mitigating certain risks in construction projects, it also indicates that fully eliminating risks is often not a straightforward endeavour. Based on the risk assessment conducted, this study found that eliminating risks is not straightforward. It is essential to address these risks promptly and implement an effective treatment plan as a precaution to prevent future occurrences. This proactive approach involves early identification of potential risks and implementation of mitigation strategies before they develop into significant issues. By taking decisive action and implementing preventative measures, organisations can reduce the likelihood of these risks materialising, improving project outcomes and overall risk management effectiveness.

6.0 CONCLUSION

This study has examined the practical application of the *Garis Panduan Pengurusan Risiko Bagi Projek Kerajaan* through a case study of the mosque construction project in Kuala Lumpur. It focused on two key risk management strategies: "avoiding risk" and "accepting risk," and assessed whether certain risks could be eliminated through proper planning and proactive measures. The findings indicate that structured risk identification, classification, and treatment can enable project managers to handle challenges more efficiently and ensure more effective project delivery.

Every construction project has its unique characteristics, which in turn influence the types of risks encountered. In the case of the mosque construction project in Kuala Lumpur, as a religious building, particular attention was required for faith-based elements, such as aligning the *qibla* direction.

Based on feedback from the project engineer, the project experienced a delay of several months. However, delays are widely recognised as one of the most common, complex, and high-risk issues frequently encountered in construction projects (Ahmad Hisham & Yahya, 2016). Risks, problems and challenges are unavoidable. However, the success or completion of a project depends on the project team's ability to foresee, prepare for, and effectively manage these risks, ensuring the project does not become stalled or fail.

In conclusion, this study affirms that the *Garis Panduan Pengurusan Risiko Bagi Projek Kerajaan* serves as a relevant and adaptable framework for managing risks in real-world public-sector construction projects. It offers practical guidance to project managers in making informed decisions regarding risk strategies, ultimately contributing to more successful and resilient project outcomes.

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