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BLUEPRINT TO BREAKDOWN: FACTORS AND IMPACTS OF EARLY CONTRACTOR TERMINATION IN MALAYSIAN HOUSING PROJECTS

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Abstract — Malaysia, as a fast-developing nation, is experiencing a serious shortage of housing, surpassing the government's capacity to meet citizens' needs due to rapid population and urban growth. Despite efforts to meet this demand, the early termination of main contractors in housing projects continues to affect the industry, causing consequences such as project delays and cost overruns. This paper reports research that aims (1) to identify the key factors leading to the early termination of main contractors in Malaysian housing projects, and (2) to investigate the resulting impacts. A qualitative approach was adopted, using semi-structured interviews with five respondents from the developer, main contractor, and consultant perspectives. The study identified four key factor categories—client-related, consultant-related, contractor-related, and external—and four impact categories—operational, stakeholder, economic, and psychological/team dynamics. The findings will assist the Ministry of Housing and Local Government (KPKT) in understanding these factors and impacts, enabling the development of mitigation measures and initiatives to improve housing delivery in line with the National Housing Policy 2018–2025.

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***Keywords*:** early termination, housing, main contractor, factor, impact

1.0 INTRODUCTION

The cruciality of addressing the housing needs is growing as it has been outlined in the United Nations' 11th Sustainable Development Goal: Sustainable Cities and Communities, Target 11.1. Malaysia as a fast-developing nation, is experiencing a serious shortage of housing, surpassing the capacity of government to meet the housing needs of its citizens due to its rapid population and urban growth [1]. The rapid population growth is further projected to increase from 28.6 million in 2010 to 41.5 million in 2040 [2]. This data gives a clear indication that the imminent grow of number of populations in Malaysia has posed a desperate demand for housing development from time to time.

In recent reports from newspaper, instances of mutual or early termination of main contractors in Malaysian housing projects have been on the rise. This can be evidenced by a mutual termination agreement entered by Yong Tai Bhd and Siab Holdings Bhd on 31 March 2023, TCS Group Holdings Bhd and Saujana Permai Development Sdn Bhd in June 2023, and termination of contract between KSK Land Sdn Bhd and Grand Dynamic Builders Sdn Bhd on 19 April 2023. According to research conducted by Tumi et. al. [3] in construction industry in Libya, one notable consequence of project delays is the termination of contracts. In this study, "breakdown" refers to the disruption of the project progress, as well as the collapse of the contractual relationship between client and contractor, resulting in various impacts that hinder the achievement of the projects' objectives.

As of 31 October 2023, a total of 55 delayed projects and 497 sick projects have been identified, with 117 confirmed abandoned projects [4]. While the data indicates positive trend for delayed projects showcasing a 62.07% reduction from 28 Feb 2023, the numbers of sick and abandoned projects persistently remain high, fluctuating around the initially identified figures.

Thus, this research was conducted with the aim to improve the construction and deliveries of Malaysian housing projects. The research objectives are 1) to identify the key factors that lead to early termination of main contractor

in housing projects in Malaysia, and 2) to investigate the impact of the early terminated main contractor of housing projects. This paper is organized as follows: First, it begins with a literature review regarding the factors and impacts of early contractor termination in the context of general construction projects. Next, the methodology used in this study i.e., semi-structured interview is explained, followed by the results and discussion of the results. The final part of the paper is the conclusion.

2.0 LITERATURE REVIEW

2.1. Definition of Key Terms

2.1.1. Early termination

The term 'early' is defined by the Cambridge Dictionary as occurring near the beginning of a period of time, or before the usual, expected, or planned time. A synonymous term, 'premature', is occasionally employed by researchers to describe the premature cessation of a project, denoting actions or decisions taken too soon, especially prior to the natural or appropriate time. The definition of 'termination' refers to the act of ending something or the end of something. While there is no precise definition of 'early termination' within the Malaysian housing context, a study conducted in Chile [5] elaborated that 'early termination' involves concluding the contractual agreement between the client and the main contractor without finalizing the design or construction activities of the ongoing project before the contract's completion date.

Within the scope of this research, limited to both public and private Malaysian housing projects, particularly those employing the Traditional (DBB) procurement system, 'early termination' is operationally defined as 'the end of the contractual relationship between the client and the main contractor without the completion of construction activities or meeting construction project objectives after the award of the contract and before the stipulated completion date as outlined in the contract'.

2.1.2. Main contractor

According to Adros et. al. [6], main contractor is the entity that establishes a contractual agreement with the client via signed contracts prior to the commencement of construction. According to Act 2015 CIDB, contractor means an individual who executes, finishes, or commits to performing any construction works. At its core, the Main Contractor is essentially the driving force behind a construction project. They play a crucial role in bringing designs, drawings, schedules, and specifications to life, crafting a physical structure for the client [7].

2.2. Factors of Early Termination of Construction Projects

2.2.1. Client-related factors

Change in project requirements

Early project termination may occur when clients change the project's purpose or change in expected outcomes [8]. Toader et. al. [9] emphasize that clients contribute to early project termination through setting unrealistic expectations, frequently changing project requirements, and lacking efficient planning. Interference with the project scope, changes in requirements, and specifications also can hinder project progress, contributing to early termination [10]. Yong et. al. [11] further elaborated that excessive demand and variation will affect the construction time performance. This is because when the client alters his requirements, it will take more effort and time for the project team to redesign the project, and reschedule the work program, hence more cost will be incurred, and more time will be consumed.

Poor resources allocation

Resources, encompassing construction materials, equipment, human resources, labor, land, finance, or information, play a crucial role. Delayed resource allocation can escalate costs, potentially leading to early project termination [10]. Delays in resource approval and allocation can significantly disrupt the project schedule, resulting in additional costs for procuring materials beyond the initially planned project period.

Poor financial capability

Havila et. Al. [8] supports the notion of funding sources, asserting that early project termination may occur when clients running out of funds. Financial limitations experienced by the client can also lead to the early termination of the project, possibly arising from the lack of liquidity in assets and limited access to credit [10]. It is essential for clients to possess strong financial capabilities before initiating a project to maintain the project's cash flow [11]. This is because funds serve as the primary driving force supporting the entire chain of construction activities.

Irregular payments

Irregular payments to contractors, leading to contract breaches, were identified as potential reasons for early termination [12]. Financial issues, such as delayed payments and financial difficulties, are major factors causing delays in construction projects in Malaysia [13], jeopardizing the overall success of the construction project and potentially leading to early termination [14–16]. Delayed payments place a burden on contractors, as they are responsible for covering labor and equipment rental costs during the waiting period. Due to the substantial financial commitments associated with construction projects, many contractors encounter challenges in managing substantial expenses when their payments are delayed [17].

2.2.2. Consultant-related factors

Poor conflict management

The construction industry's diverse nature inevitably generates conflicts and disputes, affecting project performance and making it harder to achieve project goals [18, 19]. Abeynayake et. al. [12] outlined several prevalent classifications of disputes in contractual relationships, particularly those significantly influencing project termination. These include conflicts among relationships and individuals in the project, financial issues, quality standards of workmanship and disputes related to project timeline.

Lack of experience

The experience level of a consultant team also significantly impacts the success of construction projects, depending on the number of specialized project team members who are experts in handling individual tasks [20]. In research by Yong and Mustaffa [17], the analysis of consultant-related factors further supports that the competency level of consultants is likely to influence project success or failure. Firms with many years of experience are considered more likely to have the ability to manage and monitor projects, equipped with the understanding, competence, and confidence to provide a detailed and accurate risk perception [17].

Lack of cooperation, commitment and communication

The absence of a strong relationship between consultants and contractors can lead to communication barriers, resulting in instructions being conveyed incorrectly. Ineffective communication increases the risk of project failure, ultimately leading to early termination [11, 21]. In the absence of adequate mechanisms to address these issues, conflicts evolving into disputes can significantly impact project success and harm relationships within the contractual chain between parties [11]. Abdul Kadir et. al. [22] stated that the late issuance of construction drawing is interrelated to coordination problem among consultants, which later causing the works to be delayed.

2.2.3. Contractor-related factors

Lack of skills and competency

The Malaysian construction industry operates in a price-competitive environment facilitated by competitive bidding. This predominant procurement approach, driven by the lowest cost characteristic and dependent on the application of evaluation and bidding practices [23], may result in the lowest bidder lacking the required competency for project execution. Consequently, a contractor with insufficient experience may struggle to plan and manage projects effectively, leading to disastrous consequences and potential early termination [11]. As indicated by [24], a significant proportion, approximately 70–80%, of the construction workforce in Malaysia comprises

foreign individuals. The majority of these foreign laborers lack specialized skills, leading to comparatively lower work quality in comparison to local workers [25]. Consequently, the diminished quality and productivity exert a substantial impact on overall project quality [17].

Typically, numerous subcontractors are engaged under the main contractor. Consequently, if a subcontractor lacks experience or is incapable, it poses a risk to the termination of construction project [11]. Sambasivan et. al. [26] further assert that a high degree of subcontracting often leads to a heightened risk of time overruns and causes inefficiencies, potentially resulting in early termination. Both studies indicate that a contractor's experience and competency are crucial determinants of a project's success [11, 27].

Poor working relationship

Given the prevalence of subcontracting and external consulting in the construction industry, it is common for main contractors to overlook the importance of coordination, placing the burden on subcontractors and consultants to manage tasks independently [21]. In instances where coordination is lacking, there is a risk of incomplete information transmission, heightening the potential for project failure and, ultimately, premature project termination.

In Malaysia, the deficiency in effective communication among key project stakeholders, including clients and contractors, emerges as a significant contributor to project delays [26]. As evidenced by Sambasivan and Soon [26], any breakdown in communication has the potential to result in significant misunderstandings, consequently causing delays in project execution. Consequently, these delays have the potential to culminate in the premature termination of projects.

Improper planning, monitoring and managing

Before commencing the actual implementation of the tasks, construction projects frequently demand meticulous and comprehensive planning [17]. Local contractors often fail to come up with a practical and workable work programme at the initial planning stage. This failure is interrelated with lack of systematic site management and inadequate contractor's experience towards the projects [26]. Inadequate management of any facet of a project is likely to result in project failure, ultimately leading to its premature termination. Contractors may mismanage various aspects of the project, including but not limited to finances, labor, conflict resolution, site management, contractual obligations, relationships among subcontractors and consultants, as well as alterations to project designs [21].

Lack of site management and supervision

Inefficient site management by contractors stands out as a major factor leading to construction delays [22]. According to the research by Sambasivan and Soon [26], local contractors often exhibit shortcomings in site planning, implementation, and controls. Inadequate site management leads to delays in addressing on-site issues, negatively affecting overall project advancement and ultimately contributing to the premature termination of projects.

Failure to adhere to requirements

In a case law of Fasda Heights Sdn Bhd v Soon Ee Sing Construction Sdn Bhd & Anor (1999), the plaintiff, Fasda Heights Sdn Bhd had terminated Soon Ee Sing Construction Sdn Bhd (the first defendant, also the contractor), due to failure in executing the works correctly and failed to rectify defects in accordance with the Architects' Instructions.

2.2.4. External factors

Resources availability

As explained by Yong et. al. [11], the timely availability of resources is a crucial aspect related to the construction industry. This dependency is closely tied to the demand and supply chain of materials in the market. This issue

holds significance as it can significantly impact construction timelines if specific resources are not accessible when needed. As identified by Abdul Kadir et. al. [22], a critical factor leading to reduced labour productivity and consequent project delays is the shortage of materials at the project site. Material scarcity refers to challenges arising from either the unavailability of items or the prolonged time required to obtain them. This situation can result in workers being idle, leading to work stoppages that contribute to delays in housing projects and potential early termination.

Not only materials, the insufficiency of both foreign and local workers in the market significantly contributes to delays and indirectly terminating contractors from housing projects. This scenario arises from local workers leaving vacancies to pursue more lucrative and favorable working conditions in the manufacturing and service sectors [22].

Weather conditions

Possible damage to the environment and changes in weather conditions can significantly impact efficiency and output, potentially leading to early project termination [11, 28]. Construction projects, often executed outdoors, must undergo Environmental Impact Assessment [28]. Excessive rainfall, for instance, can hinder proper concrete curing, disrupting project progress [29].

Natural disasters

Geographical location plays a crucial role, with some areas more prone to natural disasters like windstorms, volcanoes, earthquakes, floods, and other hazards that can result in early project termination [30]. Other authors have also acknowledged that natural disasters are the force majeure that can cause project delays [31–33]. However, as stated by Ihuah and Benebo [33], certain natural disasters may be triggered by human activities, such as extensive deforestation causing landslides and flash floods, mining operations leading to ground collapse, and over-extraction of groundwater resulting in land sinking.

Social influences

While obtaining the required documentation and approval from relevant parties and authorities is crucial for every project, it does not always eliminate the challenges or attempts to halt the project within the immediate community where it is situated. Local residents may resist construction activities, citing concerns such as potential increases in traffic, noise pollution, security risks, and alterations to the unique character of the area [30]. This statement is supported by Khahro et. al. [34], who assert that social factors can hinder construction progress by obstructing necessary clearances and impeding the movement of personnel, materials, and equipment to the project site.

Political instability

Political instability can affect various phases of a construction project as government policies change. Government instability is particularly impactful for large-scale projects, given the government's multiple roles as the construction client, funder, economy regulator, and construction environment regulator [30]. Changes in monetary policy, for instance, can affect the cost of construction materials and equipment, potentially leading to project termination too.

Economic instability

Economic instability, affecting not only the construction industry but all sectors, can lead to project delays if credit insurance becomes challenging to obtain. Construction companies may face difficulties relying on financial institutions or capital funding, sometimes resulting in bankruptcy [35]. Unstable economic conditions, fluctuations in the inflation rate, and changes in economic policies may potentially lead to early termination. This may result in an unanticipated and substantial increase in material prices, leading to exceeding the planned project costs. If the contractor believes that the surges in material prices have exceeded the initially agreed contract price, it could potentially lead to a mutual termination as evidence by The Edge Malaysia [36, 37].

2.3. Impacts of Early Termination of Construction Projects

When the progress of a project is disrupted, either in terms of work or timelines, it inevitably affects the time, cost, and quality of the project. Havila et. al. [8] state that premature project closure requires renegotiation of timelines, resource reallocation, and a redefinition of project goals. Abeynayake et. al. [12] outline six impacts of early project termination: effects on professionals, damage to organizational reputation, consequences for external parties, impacts on employees, disruption of project progress, and losses incurred due to termination. Early termination can also lead to disputes, contractor blacklisting, and bankruptcy [12]. Disputes may arise from unfulfilled entitlements of either party, or even if a contractor is removed from a blacklist after dispute resolution, damage to their reputation may persist [12].

Based on a case study in South Africa [38], identifies issues resulting from early termination, such as changes in the client's attitude, loss of client interest, diminishing interest among project team members, demotivation, job insecurity, loss of team identity, and the client's intention to change personnel. The study further notes that early termination can negatively impact a country's economy, as the construction industry significantly contributes to economic growth and backward and forward linkages across sectors. Early termination wastes resources such as materials, labor, and capital.

From literature review, the impact of early termination could be grouped into five categories as shown in Table 1.

Table 1 Impacts of Early Termination from Previous Studies

Source	Impacts of early termination	Impacts of early termination for this study
Havila et al. (2013)	Renegotiation of project timelines	Operational impacts
	Resource reallocation	
	Redefinition of project goals	
Abeynayake & Kumara (2013)	Effects on professionals' workloads	Stakeholder impacts
	Damage to organizational reputation	
	Consequences for external parties	
	Impacts on employees	
	Disruption of project progress	Operational impacts
	Losses	Economic impacts
Madidimalo (2017)	Changes in client's attitude	Client relationship impacts
	Loss of client interest	
	Client's intention to change personnel	
	Diminishing interest among project team members	Psychological and team dynamics impacts
	Demotivation	
	Job insecurity	
	Loss of team identity	
	Halting country's economy	Economic impacts

3.0 METHODOLOGY

The research was carried out in 3 stages (refer Figure 1). In stage 1, literature review was conducted to provide background study on the factors of early contractor termination in housing projects and their impacts. Searching in various databases such as Google Scholar, Scopus, Science Direct and others was carried out.

In this study, a qualitative methodology is employed, particularly semi-structured interviews for gathering information from the participants (stage 2). The criteria for selecting the respondent are mainly based on their experience and knowledge of resolving the issue of early contractor termination in housing projects (see Table 2). All the respondents had experience in resolving the event of early contractor termination in housing projects, except for R2 and R3. However, they are knowledgeable enough to answer the interview questions, by having the information from their own practices to prevent the event from occurring or information they obtained through their connections' experience. Thus, they fulfil the criteria as the ideal respondents for this research and hence, pose greater validity and credibility to the data information given.

Table 2 Respondents' Demographic Information

Respondent	Experience	Designation	Company	Working State	Stakeholder Roles
R1	27 years	Manager, Contract Administration Township Operations	Company A (Private Sector)	KL/ Selangor	Developer
R2	30 years	Assistant Contract Manager	Company B (Private Sector)	KL/ Selangor	Main Contractor
R3	20 years	Contract Manager	Company C (Private Sector)	Kedah	Main Contractor
R4	16 years	Head of Legal, CIPAA Adjudicator	Company D (Private Sector)	KL/ Selangor	Consultant
R5	29 years	Adjudicator, Mediator, Director	Company E (Private Sector)	Penang	Consultant

The decision of adopting qualitative research is prompted by the limited attention the escalating issue of early termination in Malaysian housing projects among the research publications. The interview question is divided into 3 sections:

a) Section 1 – Respondent's Background

The respondents were asked regarding their backgrounds, such as name, company name, and working experience.

b) Section 2 – Factors of Early Termination of Main Contractor of Housing Projects

The respondents were asked on their knowledge related to the early termination of main contractor of housing projects. For example, the definition of early termination, the understanding of factors identified from the literature review, their own experience and knowledge of factors of early termination in Malaysian housing projects.

c) Section 3 – Impacts of Early Termination of Main Contractor of Housing Projects

The respondents were asked regarding the impacts identified from the literature review, their own perceptions and knowledge of impacts of early termination of main contractor in Malaysian housing projects.

Non-probability sampling approach, specifically snowball sampling was adopted. Due to the close nature of the topic, this method is helpful as the samples will introduce other people to take part in the research, which they might have different experience and point of view in the topic to be studied [39]. The invitation email was sent in a total of 3 stages. In the first stage, six (6) formal invitation email were sent to the targeted respondents, but none of them had responded. Hence, another five (5) personal connections were engaged directly via WhatsApp, with two (2) of them (coded as R1 & R2) responded with their willingness to participate in the interview. In the second stage of sending out invitation emails, five (5) formal invitations were being made, with one rejection and four (4) remained unresponsive. By adopting the snowball method, R3 was engaged by recommendation from personal connection and successfully obtained her willingness to participate in the interview. The last stage of interview invitation was being made to 35 potential respondents on LinkedIn, with two (2) respondents (R4 & R5) agreeing to participate in the research interview.

Thematic analysis was used to analyse the data from the interview. First, the researchers transcribe the data and write down their initial ideas about the data. Then, codes and potential themes were created, gathering related data for each theme. After revising and refining the themes, the researchers check their applicability across the entire dataset. This process includes creating a thematic map, defining, and naming the themes.

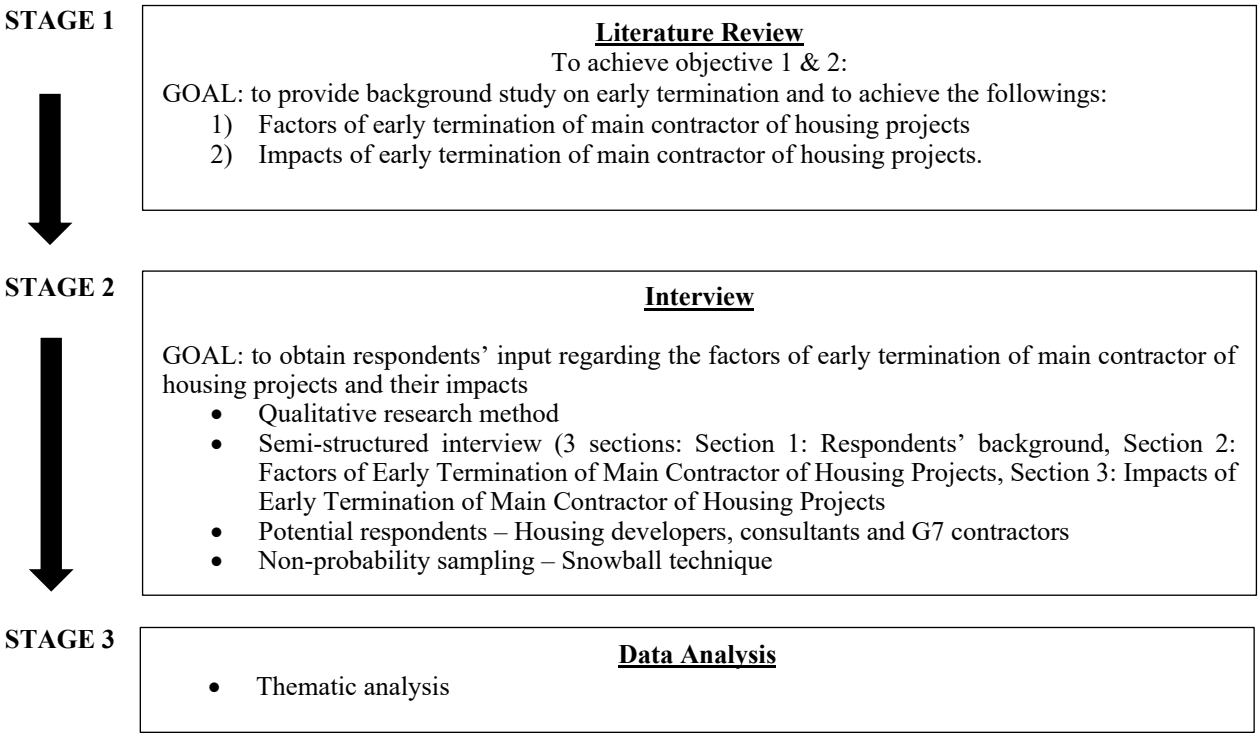


Figure 1 Research flowchart

4.0 RESULTS AND DISCUSSION

4.1. Factors Leading to the Early Termination of Main Contractor of Housing Projects in Malaysia

4.1.1. Client-related factors

From the literature review, there are four client-related factors identified. Referring to Table 7, both the primary and secondary data showed that the client-related factors are change in project requirements; poor study, planning and management; poor financial capability; and irregular payments. The interviews added the lack of client experience as a critical factor. According to one of the respondents, R4 noted that inexperienced clients often lead to project liquidation (see Table 3).

Table 3 Respondents' Quotes on Client-Related Factors from Interviews

Respondent	Quotes
R4	"…why inexperience developer makes losses in the beginning in their first or second project because they do not have good experience on development…make losses because you need to incur pump in more and more money to fix the situation…" "The project itself, it was stopped because the employer of the project was in receivership…it was affected by COVID-19 situation. So, during COVID-19, the buyers e.g. from China cannot come into Malaysia…no buyers, no money. Then the bank invoked the debenture…So when this process taken place, the project got to be stopped because there will be change of ownership…the due diligence was not carried out properly or assessment/ feasibility study was not carried out properly by the developer. I heard that his background was a banker…"

In Malaysia, there are no stringent requirements for clients to start project development. As long as they have sufficient funds and obtain approval from the relevant local authority, projects could be commenced. This lack of experience can lead to early termination.

4.1.2. Consultant-related factors

The interview outcomes in Table 4 aligned with the findings from the literature review, indicating that the three factors, e.g. poor conflict management, lack of experience and competency, and lack of cooperation, commitment, and communication are significant consultant-related factors that can lead to the early termination of main contractors in Malaysian housing projects [17, 21]. Referring to Table 4, R1 asserted in the interview, saying that poor tender evaluations by the consultants and faulty decision-making process significantly increases the risk of project failure and early termination. R2 and R5 highlighted the lack of timely decision-making and communication exacerbates project delays and financial strain. Additionally, the lack of cooperation and commitment in contract administration by the consultants can strain relationships and disrupt project continuity. These insights from respondents emphasize that consultant-related issues are pervasive and could critically impact project outcomes.

Table 4 Respondents' Quotes on Consultant-Related Factors from Interviews

Respondent	Quotes
R1	"…two projects awarded to same contractor in just one month apart. I don't know how the consultant did the assessment, because this is their first time with us…"
R2	"…like contractor, we submit all these RFI, method of statement, or all the sample and material. But the team leader doesn't want to approve it on time…then there will be delayed to the approval and then it might be delayed for contractor to purchase the material…"
R5	"…then sometimes consultants cannot manage the client. So, they don't process the variation, they don't have the final approval of the variation…Then subsequently the contractor cannot pay the subcontractor. Then people tend to fight..."

4.1.3. Contractor-related factors

Based on Table 7, both the primary and secondary data showed that four factors were accounted as the contractor-related factors, which are lack of skills and competency; improper planning, monitoring and managing; lack of site management and supervision; and failure to adhere to obligations and requirements. Poor working relationships were not considered a major cause of early termination. Contrary to findings by Sambasivan and Soon [26] and Yap et. al. [40], respondent R3 emphasized that a main contractor's primary obligation is to complete the works according to the contract provisions, regardless of the relationship with other stakeholders. As clearly stated in the PAM Standard Form of Contract Clause 1.1 Clause 2.1 and Clause 2.4; and Clause 6.0, Clause 10.0 of PWD standard form of contract in Malaysia, the contractor is to complete the works by all means and he is obliged to carry out and complete the Works in accordance with the contract and Architect's Instructions (A.I.) or S.O.'s instructions. Thus, this makes poor working relationships a less significant factor. While many studies [11, 12, 21, 27] highlighted the lack of skills and technical incompetency of main contractors, none identified poor cash flow management as a factor leading to early termination. In the Malaysian context, poor cash flow within the contractor's organization is a key factor. R1 and R4 confirmed that despite financial assistance, contractors often fail to complete projects due to poor cash flow management, leading to their early termination (see Table 5).

Table 5 Respondents' Quotes on Contractor-Related Factors from Interviews

Respondent	Quotes
R1	"…something strikes me is that they never do building construction. They are more towards main infrastructure works… I think maybe they want to try… I heard they did the main infrastructure works in a township and seems like they are okay. But for building works, this is the first time with us…"
	"…in the end we pay the advance payment for their subcontractors…That's why from what I can see is their debt is already growing…they still unable to complete the project because they don't have enough money to turn around…"
R3	"…As a main contractor, we don't look at the client's staff or their attitude. Our business is to complete the job. But if you say there's a payment issue from client to main contractor, then yes, that's a problem."
R4	"… I think in Malaysia, 60% or 70% of the main contractor, they know their stuff. Sometimes it could be due to experience…no right person on board or funding. If you do not have good cash flow, you cannot attract talent, then you cannot do good work, it's all interrelated. So, the lack of competency will relate to the ground termination of failing to carry out works in a diligent manner."

4.1.4. External factors

Referring to Table 7, all the factors identified from the literature review were found applicable in Malaysian housing context. The external factors are resources availability; weather conditions; natural disasters; social influences; political issues; and economic instability. These factors were identified from the studies by Akinshipe et. al. [30], Yong and Mustaffa [11]. However, unforeseen site conditions were not covered. According to respondent R4 who shared an adjudication experience where a sinking project site led to excessive cost overruns, causing the main contractor to terminate the project early (see Table 6). This factor is rarely discussed in previous studies due to its infrequency but is significant in this context.

Table 6 Respondents' Quotes on External Factors from Interviews

Respondent	Quotes
R2	"…COVID is a big impact to the construction industry, in fact. A lot of projects halfway, they surrender it to client after MCO due to reasons such as lack of workers, lack of funds financially to continue the project due to prolongation of time of MCO and then a lot of regulations for the construction e.g. COVID test, quarantine, all these affected…"
R3	"Very much agree (on resource availability). We were affected by COVID. At that time, the project could not be started. We were originally going to build a high-rise building here… Our steel rebar price was rose to almost two million.
R4	"…When economy is not stable and then everyone's source of funding is affected. I'm not surprised that… the developers and main contractors their source of funding was affected, and they cannot continue the project. It's pretty common."
	"…they want to revive an abandoned project. So, the developer got a main contractor to come in. Main contractor is a seasoned medium sized contractor. Very experienced. They know what they're doing. So, they came in, who knows the land was sinking."
R5	"…Once you don't have the sufficient manpower, then there's no way that he can perform…A lot. The wages went up, general workers…There was one time that is a shortage during MCO."

Table 7 Summary of Factors that Lead to the Early Termination of Main Contractor of Housing Projects in Malaysia

No.	Factors	Literature Review	R1	R2	R3	R4	R5
Client-Related Factors							
1.	Change in Project Requirements	/			/		/
2.	Poor Study, Planning and Management	/	/	/	/	/	/
3.	Poor Financial Capability	/		/	/	/	/
4.	Irregular Payments	/		/	/	/	/
5.	Lack of Experience					/	
Consultant-Related Factors							
1.	Poor Conflict Management	/					/
2.	Lack of Experience and Competency	/	/				/
3.	Lack of Cooperation, Commitment and Communication	/		/			/
Contractor-Related Factors							
1.	Lack of Skills and Competency	/	/	/	/	/	/
2.	Poor Working Relationship	/					
3.	Improper Planning, Monitoring and Managing	/	/	/	/	/	/
4.	Lack of Site Management and Supervision	/	/		/		
5.	Failure to Adhere to Obligations and Requirements	/	/	/	/	/	/
6.	Poor Cash Flow Management		/			/	/
External Factors							
1.	Resources Availability	/	/		/	/	/
2.	Weather Conditions	/					/
3.	Natural Disasters	/	/	/	/	/	/
4.	Social Influences	/				/	
5.	Political Issues	/				/	/
6.	Economic Instability	/			/	/	/
7.	Unforeseen Site Condition					/	

4.2. Impacts of Early Termination of Main Contractor of Housing Projects in Malaysia

Based on the primary and secondary data (see Table 8), the results show that there are four impacts arising from the early termination, which are operational impacts; stakeholder impacts; psychological and team dynamics impacts; and economic impacts.

All respondents stated that the early contractor termination for housing projects would impact operational performance. Operational impacts were particularly notable in terms of project delays. While existing literature has established delays as common outcome of contractor termination [8, 12, 38], this study expands on this by highlighting the specific challenge of finding qualified rescue contractors in Malaysia's housing sector. The reappointment of rescue contractors and repairing defect works could take considerable time. R1 emphasized that "the search for a new contractor extended the project timeline by roughly 4 to 5 months," This finding emphasized the need for better contingency planning during project initiation to mitigate potential delays caused by contractor termination.

All respondents agreed that the early termination of the main contractor poses several impacts on stakeholders. For example, increased workloads among stakeholders, especially for the client and consultants where new tender has to be called. Additionally, organization's reputation damage also places significant effects on the main contractors, making it difficult for the main contractor to secure goods for future projects, as suppliers may be reluctant to provide support and credit facilities. As R1 observed, suppliers become hesitant to provide support or extend credit facilities to contractors with a history of early terminations, a finding that echoes the conclusions of Abeynayake and Kumara [12]. However, R4 and R5 mentioned a positive impact: the early termination of a main contractor in housing projects could create more job opportunities within the construction dispute resolution sector. In situations

where disputes escalate, the involvement of claim consultants, such as lawyers, mediators, adjudicators, and arbitrators become essential, especially if the early termination escalates to mediation, arbitration, adjudication, or court cases to resolve the dispute.

Psychological and team dynamic impacts such as loss of interest among project team members and demotivation were identified, due to the increased workloads, according to R1. While R2 stated that retaining staff and employees within the organization becomes difficult after early termination, possibly due to financial constraints caused by debts incurred from compensating the client. This could further lead to the potential talent outflow due to job insecurity arising from financial instability post-termination. Madidimalo [38] identified significant client relationship impacts in the context of South African construction projects, such as changes in client attitude, loss of client interest, and intentions to change personnel, which can lead to the early termination. However, in this study of housing projects in Malaysia presents a contrasting scenario. The respondents did not observe any noticeable effects on client relationships due to the early termination of the main contractor.

This divergence can be attributed to the unique nature of housing projects in Malaysia, where clients have obligations towards home buyers. As highlighted by R2, losing client interest in these projects is unlikely because of these obligations. If a client were to terminate a project out of fatigue, it would result in significant financial repercussions. Moreover, changes in personnel are also improbable due to the additional costs associated with reappointments. R2, R3, and R4 emphasized that early termination would lead to extra expenses for renegotiating prices and hiring a rescue contractor to complete the remaining work. Therefore, the financial implications of such decisions serve as a deterrent to changes in client relationships in the context of Malaysian housing projects.

The need for new tenders also resulted in what R5 referred to as “unintended costs” where additional legal expenses were incurred. This not only aligns with prior studies on economic impacts [12] but also shows the added financial burden borne by clients.

The findings suggest that client relationship impacts, which are notable in other contexts, may not be universally applicable. In Malaysia, the financial obligations and costs associated with early termination and reappointment of main contractor outweigh the potential impacts on client relationships. This underscores the importance of context-specific studies in understanding the dynamics of construction projects. Given these insights, it is clear that client relationship impacts were not a significant impact in this study of Malaysian housing projects.

Table 8 Summary of the Impacts of Early Termination of Main Contractor of Housing Projects in Malaysia

No.	Impacts	Literature Review	R1	R2	R3	R4	R5
1.	Operational Impacts	/	/	/	/	/	/
2.	Stakeholder Impacts	/	/	/	/	/	/
3.	Psychological and Team Dynamics Impacts	/	/	/	/	/	/
4.	Client Relationship Impacts	/					
5.	Economic Impacts	/	/	/	/		

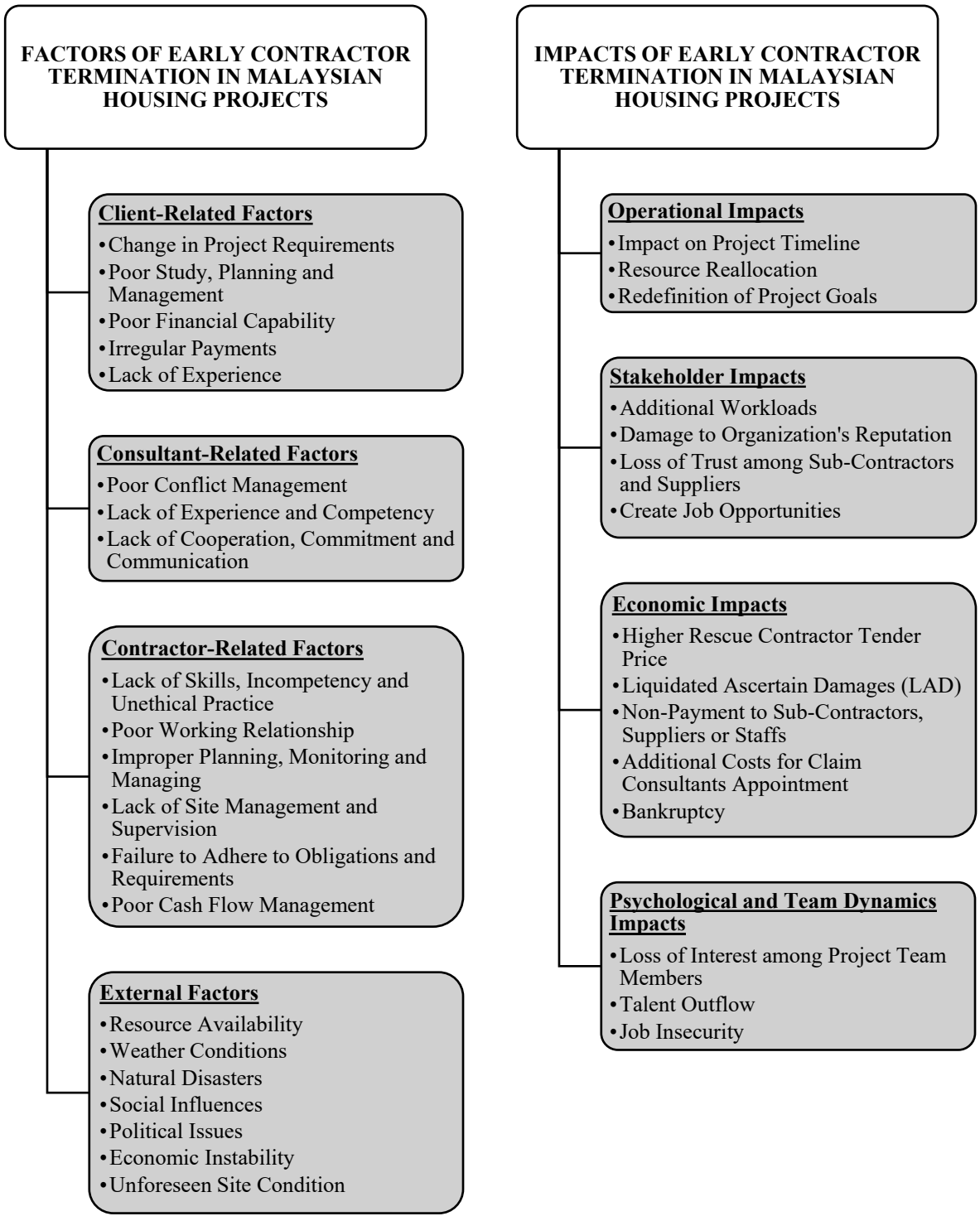


Figure 2 Main findings on the factors and impacts of early termination of main contractor of housing projects in Malaysia

5.0 CONCLUSION

Based on the findings, the first objective was achieved by identifying four categories of factors contributing to the early termination of main contractors in Malaysian housing projects: client-related, consultant-related, contractor-related, and external factors, as shown in Figure 2. The second objective was met through a literature review and the analysis of interview data, revealing four aspects of impact, namely operational, stakeholder, economic, and psychological/team dynamics. These results provide a clear link between the causes and consequences of early termination.

From an academic perspective, this study contributes to the limited body of literature on early termination in housing projects, offering a qualitative framework for understanding the issue. In practice, the findings provide developers, contractors, and consultants with insights to anticipate and mitigate termination risks. From a policy standpoint, the results can guide the Ministry of Housing and Local Government (KPKT) in refining initiatives under the National Housing Policy 2018–2025 to strengthen project continuity.

This research faced limitations, particularly the difficulty in securing respondents due to the sensitive nature of the topic and the scarcity of published references on early termination. These constraints highlight the need for greater transparency and data availability within the industry.

6.0 SUGGESTIONS

Future research should explore early termination of main contractors in other types of projects, investigate the possibility of using technology to aid in early termination detection and resolution, and examine the effect of procurement types on early termination of main contractors. Addressing these aspects will be essential to improving housing delivery efficiency, reducing delays, and enhancing industry resilience.

Conflicts of Interest

The authors declare that there are no conflicts of interest regarding the publication of this paper.

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