



Forms of Terms of Contract for Maintenance of Public Buildings

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Abstract

Housing is essential to the development and progress of a country. In Malaysia, the government has implemented numerous programmes to promote home ownership in response to the housing shortage. However, problems with building performance and condition continue to increase due to defects in the housing stock. This study examined the forms of procurement for building maintenance management for public housing by interviewing eight maintenance managers. According to the data, specialised contracts, repair and maintenance and fixed-term contracts are the most common forms of maintenance contracts.

Keywords: PR1MA housing, Low-cost housing, Forms of Terms of Contract, Outsourcing, Malaysia

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1.0 Introduction

Housing is a factor of production. Housing provides accommodation, comfort, satisfaction, respect, and a lively living environment for users and neighbourhoods. Housing has been identified as a national agenda in most countries, regardless of whether the country is underdeveloped, developing, or developing through the formulation and implementation of policies. In Malaysia, the government has implemented several housing plans and schemes to boost homeownership among Malaysians in response to the housing scarcity (Lim et al., 2015). However, while the housing gap is widening, incidences of defects in buildings are increasing. Defects decrease the buildings' functionality, usability, and durability (Olanrewaju et al., 2021). Multiple factors can cause a construction defect. Defect depends on the integrity of the building, the occupants, and the maintenance schedule. While some organisations take an in-house approach, most outsource their maintenance services, and a significant number combine both approaches. There are various contract forms for the delivery of systemic services. Therefore, this survey examined contract forms for building maintenance. The survey includes ten forms of outsourcing maintenance contracts. The questionnaires were administered to eight (8) maintenance managers of PR1MA housing developers.

2.0 Background and conceptual justification

Housing is required for national economic growth and development. National well-being and productivity are related to the sufficiency and quality of housing stock. The performance of housing is related to the well-being, contentment, IQ, and behaviour of the housing occupants. Globally, housing shortages are problematic. (WHO, 2018; Urban Reform Institute, 2021). In most countries, homeowners and occupants invest up to 30% of their income in housing, and many keep more than one job to meet their housing needs. To address housing shortages in many economies, governments often employ a dual approach of directly providing housing and establishing partnerships with the private sector. In Malaysia, due to the inadequacies of affordable supply, the government has introduced various housing programmes and schemes (Lim et al., 2015). However, there are incidences of defects in the housing.

Building defects can be visually unappealing, and disruptive, and pose risks to occupants and the general public. Sick building syndrome has a positive correlation with building defects. Building defects could lead to vandalism, arson, and deaths (Olanrewaju et al. 2012). According to Sommerville and McCosh (2006), defects set up inner psychological tension in the building users. Olanrewaju and Woon (2017) surmised that many affordable housing developments in Malaysia face pre-occupancy obsolescence. In Malaysia, the government has implemented several plans and projects to improve the functionality and quality of housing due to the quantity, complexity, and nature of the flaws in inexpensive housing. For instance, Program Penyelenggaraan Perumahan (PPP) was introduced in 2011. RM500 million was allocated for the maintenance of public housing. In particular, the strategy entails significant upkeep tasks like painting, lift repair or

replacement, water tank repair, and sanitary system cheap housing. In 2012, the Tabung Perumahan 1Malaysia (TP1M) was introduced with an initial fund of RM180 million for maintenance. In 2015, was RM105 million allocated for the maintenance of Government quarters.

2.1 Housing Schemes: The Perumahan Rakyat 1Malaysia (PR1MA)

Through PR1MA, the government aims to build 500,000 housing units in Malaysia. The price per unit ranges from RM 100,000 to RM 400,000 (PR1MA, 2016). The PR1MA homes have different types and sizes within an integrated community to meet buyers' or occupants' requirements. While there is no specific data on defects on the PR1M, there are increasing criticisms and complaints from homebuyers and users due to poor maintenance. Evidence suggests that the building maintenance is inadequate. Despite the numerous efforts, the state and functionality of the buildings continue to draw criticism, particularly in the media. But the main problem between the clients (PR1MA) and maintenance contractors are due to the contracts and procurement practices and procedures.

2.2 Procurement of building maintenance services

Procurement processes cover all the processes involved in acquiring a project, ranging from planning, designing, and construction or maintenance of a project. The various types of procurement and contract forms reflect the extent to which the client is willing and able to bear certain levels of risk measured in terms of cost, quality, time, and other criteria within the client value system. The procurement of maintenance management is concerned with the process that involves the selection of consultants, contractors, and other parties to carry out the maintenance work (Olanrewaju and Abdul-Aziz, 2015). While some organizations insource their maintenance, most outsource the services, but many of the organizations combined both methods. In-sourcing refers to the arrangement in which the organization itself provide the maintenance services internally. In this case, the organization uses its employees to maintain the buildings. Outsourcing is the strategy of using 'outsiders' to provide maintenance services based on agreed procurement strategies and terms of contracts. The various procurement methods have distinct features and characteristics that affect the value of the service delivery. The prevalent types of outsourcing contracts encompass various forms, such as lump sum contracts, measured term contracts, and specialist term contracts. The others include day work term contracts, tendered schedule term contracts, cost reimbursement contracts, repair and maintenance contracts, service level agreements, and total facility management

3.0 Outline of resign method

This research is of the explanatory type because it incites the why question. The research seeks to provide the answer to the question that concerns the dominant form of contract for the PR1MA buildings and representing public affordable housing. This question requires an answer because poor maintenance management is related to procurement and contract

terms. In pursuit of this objective, this research combined a questionnaire and a comprehensive review of the existing literature. The convenience technique was used for the primary data collection. It is an inductive technique, like other survey techniques. The approach is applicable when there is insufficient information on the population and sample. However, its findings may not be generalizable. However, with a large number of respondents, the findings can be representative (Sekaran and Bougie, 2016). The questionnaires were administered to the respondents online and conducted over two weeks (i.e., 3/17/2021 through 3/27/2021). The terms of the contract form for the maintenance services were assessed using a nominal scale. In the post-pilot study, the respondents were presented with a list of 10 terms of contract forms and were required to evaluate them by ticking the form they had applied to the maintenance of the buildings. The questionnaire technique was adopted because of the same sample size (1) and because and (2) due to the COVID-19 pandemic. It was difficult to conduct interviews with maintenance organisations during the pandemic.

4.0 Results

Out of the respondents, four individuals were categorized as 'maintenance executives,' while two were identified as 'facility managers.' Among the respondents, six had a work history ranging from two to four years. One participant had less than a year of work experience, while another had more than five years. Additionally, five of the respondents possessed an academic background in facility management. The other three are in quantity surveying, real estate management, or engineering. Six have a bachelor's degree. The average size of the buildings is 7.5 acres, with sizes ranging from less than 5 acres to 15 acres. With an average age of 3 years, the buildings are relatively new. For each of the buildings, the annual maintenance expense surpasses RM400,000. The data revealed that maintenance cost is estimated based on expenditures for the previous year (Table 1). Table 2 contains ways of selecting procurement strategies for the maintenance service.

Table 1: Distribution of method of estimating maintenance budget

Method to estimate the maintenance budget	Responses	
	Frequency	Percentage (%)
Based on previous expenditure	7	53.85
Based on building condition	5	38.46
Based on instruction from top management budget	1	7.69

Table 2 contains the distribution of the form of contract for the maintenance of the buildings.

Table 2: Distribution on ways to select procurement method

Ways to select procurement method	Responses	
	N	Percentage %
Based on previous experience	8	42.11

Based on maintenance budget allocation	7	36.84
Based on age of the building	3	15.79
Based on the instruction from top management	1	5.26

Table 3: Distribution of ranking of form contract

Currently employ of Procurement methods	Responses		Percent of Cases (%)
	N	Percentage %	
Specialist term contract	8	16.33	100
Repair and Maintenance Contract	8	16.33	100
Measured term contract	7	14.29	87.5
Service level agreement	6	12.24	75
Lump sum contract	6	12.24	75
Tendered Schedule Term contract	4	8.16	50
Cost reimbursement contract	4	8.16	50
Total facilities management	4	8.16	50
Traditional	2	4.08	25

5.0 Discussion

One of the key challenges in budgeting and forecasting for maintenance work stems from the scarcity of reliable data and the inadequate utilization of effective estimating and forecasting tools and techniques. Because, unlike for new buildings, the exact quantity of work for maintenance is generally unknown. Therefore, the budget for maintenance is typically derived from the incorporation of previous expenditures and augmenting it with a percentage ranging from 1% to 20%. However, this approach often results in sub-standard maintenance practices and a reactive corrective approach. To assess the effectiveness of each procurement method, their frequency of implementation is evaluated. The evaluation of each procurement method is conducted by considering its frequency of implementation as a main factor. The analysis of the rankings also shows the dominant contract forms based on the frequency of applications for the buildings. The data revealed that all forms of contract are prevalent. Given their advantages and suitability, it is unsurprising that the specialist terms contract and repair and maintenance contract are commonly employed. The most common and typical technique of contract is specialist term contracts for outsourcing. Because demand for maintenance services is usually in terms of a trade or work package for subcontracting, like roof repair, pipe leakage, sewage lift defects, and painting, it is conceivable that all the buildings use specialist terms of contracts. A specialised term contract is an arrangement that is designed for hiring people or businesses with specialised knowledge and experience in building maintenance services. It is a contract made to handle the particular maintenance requirements of a building or a portfolio of buildings over a certain time frame. The agreement may specify performance benchmarks and service level agreements, which describe the desired quality, responsiveness, and deadlines for the maintenance services. The service level of agreement makes it easier to confirm that the contractor complies with the requirements and provides the necessary level of service. When acquiring building maintenance services

through a Specialist Term Contract, it is common for the building owner or management to seek specialized knowledge from external contractors or service providers with a proven track record in building maintenance.

Hence, it is unsurprising that "repair and maintenance" also hold a prominent position in contracting maintenance services for buildings. This contract form does not require the appointment of an independent contract manager. This sort of contract focuses on handling the ongoing repair and maintenance requirements of a building or a portfolio of buildings. In this form, it is guaranteed that the buildings will receive prompt and effective maintenance. Outsourcing through measured-term contracts is also dominant. This type of contract evaluates the value of the work covered through the agreement. It is beneficial for projects with intricate details and difficult to create a precise specification before work begins (RICS, 2009). In this type of contract, each contractor offers an adjustment percentage in response to a specified schedule of priced activities that serve as the bidding document. This type of contract is subject to a wide range of standards. A measured-term contract gives the client flexibility and enables them to hire a contractor for ongoing upkeep and repairs without the need for numerous separate contracts. It facilitates effective management of building maintenance requirements over a long period and provides a systematic framework for collaboration. The pricing is determined considering the amount of work that the contractor has completed. The method of measuring works is specified in the contract and depends on units of work, quantities, or other measurement standards.

The data revealed that outsourcing through service-level agreements is also prevalent for building maintenance contracts. Many also use the lump-sum contract. This contract exists when the contractor agrees to execute maintenance services at an agreed-upon single price based on the information obtained, such as the drawing, bill of dilapidation or defects, and site inspection. This contract is more suitable to use for the planned maintenance. A lump-sum contract gives the client cost certainty and lowers financial risks because it provides a clear and fixed price for the building maintenance services. However, it exposes the contractor to the risk of unanticipated expenses or delays (Olanrewaju and Abdul-Aziz, 2015). It is suitable where well-defined maintenance projects or activities can be precisely determined and measured. Before the contract is signed, a lump-sum price for the maintenance work is agreed upon with all the parties. Usually, the contract specifies the timetable and mode of payment. Payments are made based progress of work.

The data revealed that only half of the buildings use tendered schedule-term contracts. This kind of contract is appropriate in time-constrained circumstances where it can run both the design and bidding phases concurrently (RICS, 2009). A schedule-term contract for the procurement of building maintenance is an arrangement between a client (the owner or management of the facility) and a contractor or service provider that creates a framework for the delivery of maintenance services. In the building and maintenance sectors, it is a type of contract that is frequently utilised. An agreement with a scheduled term gives the client the freedom to request maintenance services whenever they are required during the duration of the agreement. Allowing the client to create work orders or schedules that correspond to their demands, facilitates the effective management of building maintenance

requirements. When there are continuous or frequent maintenance requirements and the precise scope of the work changes over time, this sort of contract works effectively. Pre-agreed fees for various services may serve as the basis for the pricing.

The outsourcing through cost-reimbursement contract applies to half of the buildings. Cost reimbursement. When the scope of the task or the associated expenses are uncertain or flexible, a cost-reimbursement contract offers both the customer and the contractor flexibility. It enables the client to closely oversee and supervise the project while paying the contractor for their actual out-of-pocket expenses. When it is difficult to accurately estimate costs upfront or when changes to the scope of the job are probable, this sort of contract is appropriate. An arrangement under which the clients reimburse the contractor or service provider for the actual expenses incurred in providing the maintenance services, plus an agreed-upon fee or profit margin. It is a sort of contract that is frequently used when the work's scope or the associated expenses are unclear or challenging to estimate upfront.

The data revealed that 50% of the organisations used the total facilities management. It provides an integrated method for managing and maintaining buildings that entail contracting out all facility-related services to a single company. It is an all-encompassing solution that addresses numerous facets of building operations, maintenance, and support services. Large-scale structures like commercial buildings, hospitals, educational institutions, or government complexes frequently use this contract form. Total Facilities Management offers the benefit of outsourcing the entire range of facility-related services to a specialized service provider, allowing the client to focus on their core business while ensuring efficient and effective management of their building maintenance needs. It provides a comprehensive and integrated solution that promotes collaboration, cost control, and continuous improvement in facility operations.

The traditional contract is the least dominant among all the forms of contract. The contract specifies the maintenance services' fee schedule. This could involve cost-plus agreements, hourly rates, or fixed prices. Additionally, it specifies the terms of payment, such as the timetable and mode of payment. For the maintenance job, the contract often sets performance benchmarks and quality standards. This guarantees that the contractor provides services that are up to par with expectations and adhere to all relevant laws, rules, and industry standards.

6.0 Conclusion

The study looked into the different kinds of contracts used in Malaysia's high-rise residential building procurement strategies. Interestingly, most of the maintenance is outsourced. While this is not surprising, it has been continuously argued that organisations should not provide their maintenance services in-house instead of sourcing the services. This practice still prevails because organisations view maintenance as an "unnecessary devil" that will cost what it would, no matter what the client does. This seems to justify Murphy's law. Effectively, this means seeing maintenance as a problem, not a value-added service. For building-based organisations, where the buildings constitute more than 50% of their assets,

it is critical for such organisations to have high-performance maintenance organisations and to only outsource highly specialised works that will warrant the use of the various contract forms. In general, the primary aim of outsourcing, and in particular the dominant one, as revealed in this research, is about the buildings, not the users or occupants. However, maintenance should be initiated based on the occupants' value systems. The buildings are not procured on their own; they are built for the users. Outsourcing also requires proper contract administration and management. This includes tasks such as progress monitoring, quality control, documentation, and payment administration. Yet it could be possible that the results would be different if the buildings were not government buildings. Some private clients may prefer to have competent in-house maintenance organisations. To decrease claims and disputes, the internal maintenance organisation should do a condition and performance audit of the buildings, supported by document analysis and interviews with the stakeholders (users). If such data is available, the maintenance organisation should be informed of it so they can assess the level of risk they would face if chosen for the maintenance. According to estimates, the study will improve structures, improve defect management, increase homebuyers' happiness, and provide justification for maintenance budgets and spending. It will promote accountability for government spending and public openness.

Article Contribution to Related Field of Study

The results of this study have significant theoretical and practical ramifications for next studies on home maintenance service procurement. The key conclusions are generalizable ontologically to the maintenance management services of different types of buildings in and outside of Malaysia.

Authors Declaration

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