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THE CHALLENGES IN MAINTENANCE MANAGEMENT OF HERITAGE BUILDINGS IN BANDAR HILIR, MELAKA

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ABSTRACT

Heritage building becomes significant to the country's valuable assets. The value of heritage is irreplaceable since it was part of history that can be inherited to the next generations. The aim of this study is to investigate the maintenance management on the heritage building in Bandar Hilir, Melaka. Therefore, the objective of this research is to identify the challenges and the strategy to improve the maintenance management of the heritage building. Maintenance is crucial part to prolong the building lifespan. However, heritage buildings are always have experienced the neglect of maintenance practice. Managing the heritage building always leads to the issue and problem due to many factors which are under control that was led by various challenges. Thus, to achieve the objective of this study, several heritage buildings in Bandar Hilir, Melaka were selected according to the status of the building itself focusses on the administrative building. The researcher adopted the qualitative approach involved the semi-structured interviews with the building occupants or building custodians of a heritage building. The data analysis for this study is using "NVivo" software to analyse the qualitative data. This research study revealed the financial aspect as the main challenges in the maintenance management of heritage building. Meanwhile, the conservation process, maintenance plan, routine inspection and the expertise officer as the strategy in managing the heritage building. In conclusion, those challenges are need to be addressed in order to identify the strategic planning significant to enhance the performance of the heritage building.

Keywords: *heritage building, challenges, strategies, maintenance management, bandar hilir*

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INTRODUCTION

Malaysia has a variety of heritage buildings in various state capitals that provide revenue and prestige towards the owners and the nation (Tan et al., 2016). The element of heritage includes those historic buildings, structures, objects, and historical areas, aesthetically and architecturally valuable (Al-Sakkaf et al., 2020). The significant value of heritage is irreplaceable in sources of life because it shows the natural and cultural identity and being an integral part of modern life that were created in the past. If a building withstands for 100 years, it can be considered as historical (Aerial et al., 2018). As such, heritage buildings represent the property structure of historic buildings which require the preservation of the building in terms of historical, architectural, cultural, aesthetic or ecological value (Proptiger, 2016). However, there are many challenges faced when it comes in dealing with the heritage buildings maintenance makes it difficult to practised.

Research by Paiman (2002), as cited in Zolkafli et al. (2019) pointed out that the maintenance work for heritage buildings is often neglected, leading to the decaying of the structures and resulting in an unsafe building condition for the users and occupants. The best strategies particularly in the aspect of maintenance needs to be considered in order to avoid the heritage building continuing to deteriorate thus safeguarding the performance of the building. Due to the continued deterioration of the buildings, heritage buildings will not function as intended without a systematic maintenance approach (Zolkafli et al., 2019). It is often difficult to ensure the building can be well-maintained in order to retain the historic structure and its own symbolic value. Despite to this, the failure of implementation of the appropriate approach for maintenance of the building can cause and result in destruction of the building value and its structures (S. Stenning, 2015).

Problem Statement

According to Foster and Kayan (2009) as cited in Zolkafli et al. (2019), they mentioned that even though Malaysia's National Cultural Act of 2005 and the National Heritage Department was established, there are many heritage buildings still exist where there in poor condition with obvious signs of serious structural flaws endangering their survival. Based on previous studies, the lack of maintenance practices seems uncontrolled and has been influenced by the various numbers of issues and problems that might be linked with financial issue, environmental issues, human issue and it isalso involved with the technical issues as referring to Zahirah et al. (2016), in dealingwith the heritage building management. To this regard, the related issue becomes challenges in maintaining the performance of buildings making it difficult in prolonging the life cycle of heritage buildings values.

Research Objective

The research objectives are as follows:

- i. To identify the challenges in the maintenance management of the heritage building.
- ii. To determine the strategy to improve the maintenance management of the heritage building.

LITERATURE REVIEW

The Heritage Building Maintenance Challenges

The significance of heritage buildings has become the historical feature of cultural heritage as it represents the identity and sense of values to be handed on for future generations. However, there are many heritage buildings that still can relate to the poor maintenance and the issue of lacking in management practices will lead to the sign of serious defects becoming threatening for the existence building thereby it will lead to building deterioration (Zolkafli et al., 2019). The challenges that have been stated through previous studies are divided into five aspects as follows:

Financial aspects

Financial issues always become the main challenges for the building owner in the maintenance management on the building. Many building owners and higher-ups do not consider maintenance as a crucial aspect of the company's budgets or accounts (Mydin, 2015). Financial constraints are a major factor in why maintenance isn't carried out as it should be (Rahman, 2018). He also stated that the building wouldn't be properly maintained if there was inadequate financial support. This condition may lead to the neglect of building maintenance activities. The financial resources allocated for maintenance are subject to limitations as pointed out by Mydin, (2015). The need for adequate funding is necessary in order to maintain the condition of the building even though budget and cost often becomes a major constraint. However, if an organisation just allocates a small amount of resources to maintenance, it can only perform corrective maintenance because there won't be enough funding or maintenance resources for preventive maintenance (Mydin, 2015). Conservation initiatives typically have large financial stakes and thus are not appealing from a business perspective unless the proper support is given (Zahirah et al., 2016). Thus, it is significant to provide sufficient funding to undertake the maintenance activities that can be conducted by the building owner.

Technical aspects

The issue of technical in managing the heritage building also becomes challenges to the building owner in dealing with the building conservation works. From the start to the end of a building's life, there are issues related to the technical aspects of conservation (Rahman et al., 2018). The problems maintenance on heritage buildings which are linked with technical issues is usually encountered due to the problems with the availability of resources. According to Fidler (2005), as cited in Zahirah et al. (2016) which pointed out that, lack of resources, including labour and materials, makes it difficult to imitate crafts and composite materials. Despite this, this situation may lead to inappropriate operations on the maintenance activities. According to the study of Fauzi & Abdul Ghani, (2022), material replacement for conservation initiatives is frequently a challenge where the difficulty of obtaining replacement materials has frequently made it difficult for contractors to perform conservation work. The challenges of poor resources come from limited numbers of components or materials due to requiring an original facade of an old building. The lack of technical studies to identify the types of physical flaws present in such buildings and come to appropriate solutions was the issue that many owners were facing (Tan et al., 2016). With regards to that, such building then might significantly turn into the risk particularly to the building collapse. Hence, this issue should be avoided by dealing with heritage building maintenance.

Environmental aspects

Heritage buildings commonly are dealing with the exposure of the environmental impacts. Environmental concerns are issues brought on by external conditions like pressure on the economy, the state of the building, the location of the building, business opportunities, and interference from outsiders (Zahirah et al., 2016). Despite environmental influence and climate change, the built heritage is becoming increasingly vulnerable to sudden natural disasters (Republic & Co-operation, 2015). They also expressed his opinion that environmental risks might either be long-term effects or unexpected occurrences. The environmental impacts are mostly influenced by the various factors that might lead to serious decay. Apart from the impact, the unexpected events on the heritage building are increased by the deterioration of vital elements due to the environmental impact of climate change, water pollution, air pollution and thermal pollution. (Zahirah, 2016) also stated in his study that due to the consequent decline in demand and value for these structures in the real estate markets of historic districts, it will eventually become economically obsolete. Despite the potential impact by the environment, the strategic practice of maintenance is important as the key survival of the heritage building functionality. However, the integration of an environmentally sustainable component is lacking in the current heritage legislation in Malaysia (Zaid et al., 2021).

Human aspects

Typically, the issue of human error can be found in maintenance works on the building. The issues resulting from flaws and human error, as well as workforce attitudes and experience to understand the maintenance activities (Zahirah et al., 2016). According to Tan et al. (2016), since they are more used to traditional work methods, the lack of specialised training and knowledgeable consultants and contractors may have contributed to the demolition approach. However, the supervision and monitoring of historical buildings, which started to suffer serious damage until it was totally taken over from the National Heritage Department in 2008, have been impacted by a lack of knowledge and resources (Fauzi & Abdul Ghani, 2022). The needs for technical professional competence and skilled workers in maintenance activities helps to perform routine inspection on this heritage building. These individuals should be capable of detecting defects while assessing how much it could affect the building's ability to operate safely (Rahman, 2018). For an example, the main players to be involved in conservation activities include the technician, electrician, architect and others. However, Kayan, (2003) as cited in Zahirah et al. (2016) stated that there are numerous issues in maintaining and conserving historic structures which are related to parties and organisations lack of understanding, which causes the early loss of valuable built heritage. Thus, due to the workers' inadequate understanding, this problem could result in the failure to carry out the maintenance tasks.

Organizational Aspects

In Malaysia, the conservation of heritage buildings is usually undertaken by the government sector which involves the responsible stakeholder. The management of heritage buildings needs systematic approaches which lead a comprehensive process in relation to the sustainable conservation practice. Some of the regulations are still not updated to meet the most current standards for building protection, and thus have been considered insufficient for historic building conservation practices (Zahirah et al., 2016). In order to meet the needs of interested parties, or more specifically, the organization's goals, a management system involves directing and overseeing an organization through the implementation of a systematic approach (Rahman, 2018). The organization would enable the custodian or building occupants to apply the maintenance work to the best practice standard.

Successful Factor of Maintenance Strategy

Financial Budget

Financial budget is crucial that needs to be overlooked in any maintenance work activities especially for old buildings. Without an effective maintenance financial planning, the building would not successfully prolong its lifespan thus it will lead to building negligence. According to Hashim and Mydin (2012) as cited in Zolkafli et al.

(2019), the responsible parties must allocate a higher financial budget to ensure that the buildings are well-maintained and in their best condition. The accuracy of budgeting for maintenance work also depends on the information that is available, such as the type of building, the maintenance strategies, the circumstances in which the maintenance is to be carried out, labour costs, the cost of materials and spare parts, and the amount of money that is available to support the maintenance work (Lekarapa & Grobbelaar, 2022). Heritage building maintenance can be carried out in stages if funds or budget are limited by prioritizing the most significant, urgent and crucial maintenance needs (Zolkafli et al., 2019). The financial incentive could be managed by accessing the maintenance budget allocation in the most cost-effective way.

Maintenance Planning

The effectiveness of maintenance planning for heritage buildings is required as a key consideration to safeguarding the fabrics of buildings. By creating a successful maintenance plan, the maintenance work vulnerabilities in maintaining the historic buildings can be overcome (Zolkafli et al., 2019). The maintenance on heritage buildings requires a lot of effort, thus well-planned maintenance is necessary to prevent failure which might occur during performing maintenance works.

Regular Inspection

The regular inspection mentioned by Sodangi et al, 2011 as cited in Zolkafli et al. (2019) stated that in order to preserve the cultural significance of the buildings and aid in long-term maintenance planning, good maintenance management for heritage buildings must implement true regular and scheduled inspections. The workflow for routine maintenance includes planning, preventive maintenance, and repair maintenance (Syahmi et al., 2022). It could involve daily, biweekly, or monthly operations coordination and monitoring to make sure visitors are satisfied with the facilities (Halim et al., 2022). With regular and scheduled inspection, it helps to identify any deteriorated elements on buildings as well as to prevent any potential accidents.

Staff Training


Heritage building maintenance requires specialised skills from selected professional workers with significant regard to heritage building maintenance knowledge (Zolkafli et al., 2019). He also expressed his opinion that all employees who work on maintaining the heritage building must complete maintenance management system training. The staff members need to be provided with training and specialised skills in order to improve the organization's maintenance management system (Syahmi et al., 2022). The needs of staff training are an opportunity to upskill staff capabilities which lead to the excellent performance of the qualified staff in order to carry out the maintenance activities in relation to the best practices.

RESEARCH METHODOLOGY

Qualitative research was used in this research study as it is more suitable to addressing the problems from the respondent point of view. Basically, there are two types of data collection involved in this research study which are primary data and secondary data. Primary data in this research study are collected through personal interviews was conducted. The data collection obtained directly from the respondent which is the building occupants or building custodians. On the other hand, the secondary data will be obtained from the past research which is website, articles, journals and government publications. Particularly, these case study involved three heritage building focusing on administrative building only which is Melaka Fort Gallery, The Stadthuys and Malaysia Architecture Museum. The data collection of this research is limited due to this case study not covering the whole heritage building in Melaka meanwhile the study area will cover only on the selected heritage buildings.

Table 1: The selected case study of the heritage buildings in Bandar Hilir, Melaka

No	Name of Building	Status	Year of Built	Building Classification
1	Melaka Fort Gallery 	Heritage	1912	Administrative
2	The Stadhuys 	Heritage	1650	Administrative

3	Malaysia Architecture Museum 	Heritage	1700	Administrative
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ANALYSIS AND FINDINGS

This study basically involves the case study where the interview session was conducted with the informant from the three administrative heritage buildings. The interview was conducted through an online platform of google meeting. In the interview question, the structured interview consists of three main sections which cover section A, B and C. Basically, the data that has been collected through online interviews is analysed using NVIVO software program version 12. The data getting from the interview has been transcribed into a table. Then, the analysis of data is presented into a “matrix coding query”. The result needs to run the query first, then turns into a table coding matrix and bar chart. The visualisation of matrix coding query shows the row and column variables that can be exported to spreadsheet.

Finding Research Objective 1

Question: What are the common challenges that you faced in the maintenance management of the heritage building? E.g.: Technical, Financial, Human, Environmental, Organizational.

**Table 2: Challenges in Maintenance Management of Heritage Buildings
(Source: Researcher, 2023)**

	A: Environmental Aspects	B: Financial Aspects	C: Human Aspects	D: Organizational Aspects	E: Technical Aspects
Respondent 1					
Respondent 2					
Respondent 3					
Respondent 4					

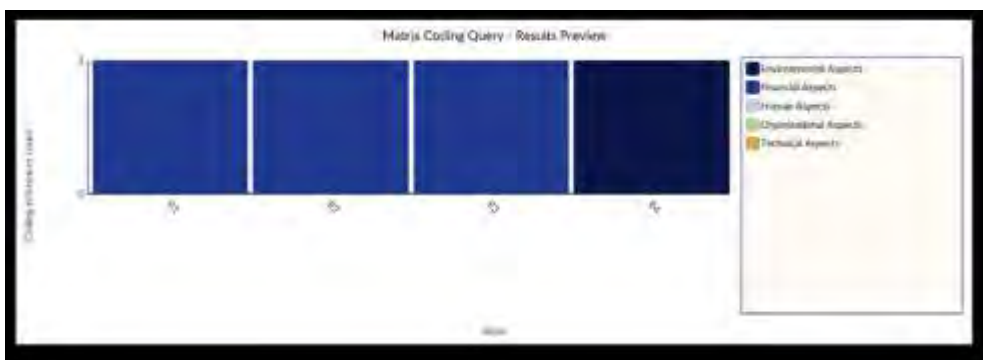


Figure 1: Challenges in Maintenance Management of Heritage Buildings (Source: Researcher, 2023)

The data indicates the common challenges that informants faced in the maintenance management of the heritage building. The Table shows the majority of the informants from different heritage buildings stated that the financial aspect was the main challenges that are facing by the informants in managing the heritage building. Informant 1 (I1) stated that the main challenges can be seen from the financial factors whereby the heritage building is old buildings that need to take more care. Informant 2 (I2) also mentioned that the high cost is indeed the financial challenge in order to repair the heritage building.

According to Informant 3 (I3), finance is one of the challenges due to the conservation activities of heritage buildings which are quite different from the normal maintenance. Meanwhile, the perspective of Informant 4 (I4), the other challenges due to the technical and financial aspects are normal in the maintenance management of the heritage building. I4 stated that the unexpected challenges in managing the building possibly comes from the environmental aspect. Since the buildings as the informant managed are located on a hillside, the damage can't be predicted.

Finding Research Objective 2

Question: In your opinion, what is the strategy to improve the maintenance management of heritage buildings?

Table 3: The Strategy to Improve the Maintenance Management of Heritage Buildings (Source: Researcher, 2023)

	A : Conservation process	B : Maintenance plan	C : Routine inspection	D : The expertise officer
Respondent 1		1		
Respondent 2	1			
Respondent 3			1	
Respondent 4				1

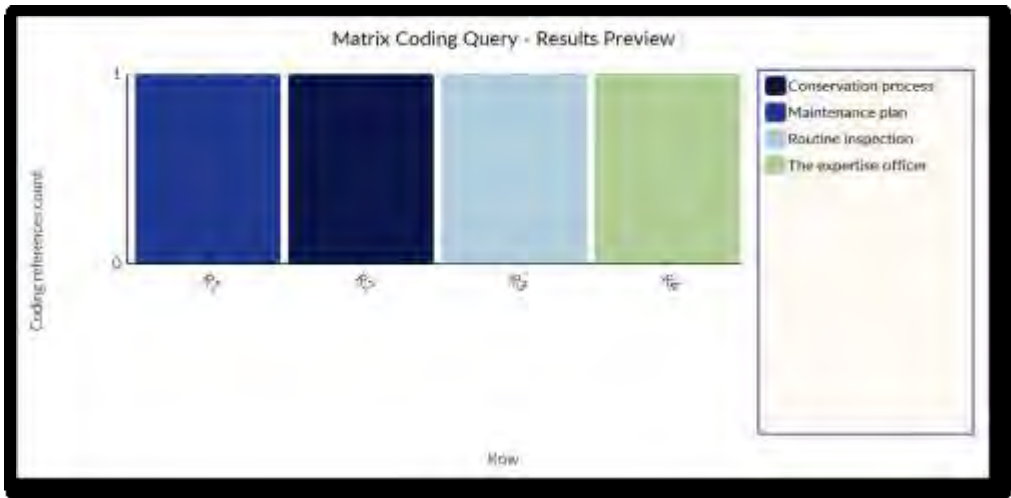


Figure 2: The Strategy to Improve the Maintenance Management of Heritage Buildings (Source: Researcher, 2023)

The data above indicates the strategy to improve the maintenance management of heritage buildings. The result shows a different perspective from the four informants who were involved in the interview session. Basically, I1 emphasized the maintenance plan as the strategy for the maintenance on heritage building. I1 stated that when buildings are properly managed and maintained, the damage to the building will be able to be minimized. Apart from that, the strategy mentioned by I2 is in terms of the conservation process which can refer to the guideline conservation of heritage buildings. The conservation process consists of preliminary study, dilapidation study, preparation of document, maintenance plan and appointment of conservator.

Based on the perspectives of I3, the routine inspection needs to be considered as the strategy towards the maintenance management of the heritage building. The strategy by having the routine inspection should be covered by the officer from the museum management that practises the routine inspection monthly or weekly in order to monitor these museums where there is any damage. Moreover, the other strategy mentioned by I4 is the needs of the expertise officer. I4 emphasized that it is much easier if there may be an officer with expertise in the conservation management of the heritage building in order to monitor the building.

CONCLUSION

This study analysed a total of three heritage buildings concerning the challenges in maintenance activities which were carried out the case study in Bandar Hilir, Melaka. To conclude, this research study emphasized the financial aspect as the main challenges considered by the respondent whereby the replacement of materials is the most significant challenge. The conservation process, maintenance plan, routine inspection and the expertise officer is another strategy in managing the heritage building. Specifically, the results of this investigation pave the way for the responsible parties to overcome the challenges by actively involved in the maintenance management of heritage buildings with a deeper understanding on these specific challenges. Despite this, those challenges need to be addressed in order to identify the strategic planning significant that can be applied by the particular parties to enhance the performance of the heritage building thus protecting the sentimental value of heritage building.

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