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Commercialising Adaptive Reuse of Historical Buildings in Kuala Lumpur as an Approach towards Sustainability

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Abstract
This study examines the relationship between sustainability and adaptive reuse in historic buildings in Asia, specifically in Pasar Seni and REXKL. Adaptive reuse can help preserve these structures and prevent demolition and reconstruction costs. The commercialisation of adaptive reuse could significantly impact Kuala Lumpur's urban planning, supporting circular economies, conservation efforts, and waste reduction strategies. This approach could also help Malaysia achieve its Sustainable Development Goals and support the Kuala Lumpur Heritage Agenda. The study uses case study and interview data to determine the consequences of adaptive reuse implementation for social, economic, and environmental sustainability.

Keywords: Adaptive reuse; Historic buildings; Sustainability; Commercialising heritage

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1.0 Introduction

Asia's metropolitan areas experienced considerable expansion and modernisation following World War II. Unlike European and U.S. cities, their expansion has dramatically accelerated over the past few decades. As a direct result of economic growth and urbanisation, Asian cities are growing, bringing prosperity to the region. However, the urban fabric of these places has been challenged by the more extensive reform and changes in economic status. The likelihood of building ever more advanced structures has steadily increased as new resources have emerged.

We can generalise the relationship between urbanisation and economic growth as follows: as income and economic development increase, the proportion of people living in urban areas increases. New commercial and financial districts are being developed and created with skyscrapers in mind (Ch'ng, 2010). The architectural response to unanticipated economic needs in Asian cities led to the vertical and horizontal expansion of new structures throughout our cities. Urbanisation has led to the destruction of many historic homes and neighbourhoods, and the situation is particularly dire in developing countries, where people often view historical sites as remnants of a past they would rather forget. Western-style architecture is frequently chosen as a symbol of development (Davidson, 1996; Ch'ng, 2010).

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The adaptation of repurposing historical buildings has provided considerable economic, social, and environmental benefits to urban regions (Ariffin et al., 2017). He argues that preserving a historically significant structure is preferable to demolishing it and starting over, while also making it economically viable. Additionally, adaptive reuse is one of the conservation strategies that can prevent the demolition of a historic building and maintain the area's unique identity (Ramli et al., 2019). Continuous improvement is one of the sustainability goals, and one way to do it is to renovate and reuse old buildings. By avoiding the costly demolition and reconstruction, adaptive reuse can help communities develop more sustainably. The benefits of adaptive reuse are often sold on their own (Bullen, 2007). As mentioned in the research's title, the commercialisation of adaptive reuse of historical structures could significantly negatively impact sustainability in Kuala Lumpur's urban growth.

Moreover, according to a recent study (Esa et al., 2021), the circular economy is a long-term, sustainable approach that distinguishes between economic benefits and environmental harm. The study discovered that adaptive reuse is the most suitable mechanism that could be integrated into the circular economy idea as a waste minimisation strategy in the construction industry, among the other four (4) mechanisms: deconstruction, design for deconstruction (DFD), design for reuse (DFR), and off-site construction method. Contrarily, the conservation economy is defined as the application of economic principles to conservation to evaluate the advantages and disadvantages of preserving natural ecosystems. It aims to promote more widespread and long-lasting conservation by lowering costs, highlighting the benefits, and incorporating conservation into genuine economic development (Reid, 2015). As a result, one of the primary goals of this research is to increase public knowledge of the adaptive reuse of historical structures, particularly in Kuala Lumpur, to safeguard the city's sustainability and spur economic growth.

The study explores viable commercialisation options for the adaptive reuse of historical buildings to achieve sustainability in Kuala Lumpur. The research evaluates the strategy's advantages and disadvantages, as well as its potential environmental and community impacts. As a result, the implementation methods of these strategies are acknowledged. This study will benefit building industry professionals such as architects and interior designers, as well as conservators and company owners in Malaysia interested in the adaptive reuse of historic structures through the viable commercialisation options. Additionally, because this study will conclude from analyses of various documented facts, it will help other academics gain crucial information about the issue.

2.0 Literature Review

2.1 History and Heritage

Heritage is a piece of our past that has been preserved and will be passed down to future generations. Heritage is defined as the meanings associated with the past in the present, and it is considered a form of knowledge situated in social, political, and cultural contexts (Graham, 2002; Harun, 2011). A detailed understanding of heritage conservation is essential before learning about the methods of adaptive reuse implementation on historical buildings. This is because there are specific guidelines or policies to follow while executing an adaptive reuse project to guarantee that the building's heritage values are preserved (Ramli et al., 2014). Malaysia's legal context regarding heritage is defined in Section 67 of the National Heritage Act 2005 (Act 645) as any heritage location, heritage object, underwater cultural heritage, or living person. Under section 2, heritage is divided into two distinct categories: Cultural Heritage and Natural Heritage. In 2024, the Ministry of Housing and Local Government introduced Garis Panduan Pembaharuan Semula Bandar (GPP PSB) to ensure the sustainability of the heritage area (Malaysia,2024).

2.2 Conservation Economics

Approaching heritage conservation from an economic perspective is challenging because of its extensive effects on quality of life, tax assessments, job development, and urban sprawl. It should be considered in terms of cultural, educational, economic, and resource value, as Pickard (2011) suggested. Built heritage is transforming economic expansion, growth, and community rejuvenation. Heritage preservation is incorporated into public policy and development projects, thereby preserving the integrity of towns and attracting investment. Goddard-Bowman (2014) explains the primary roles of heritage preservation in economic development below:

i) Community Revitalisation: Socioeconomic and economic issues have negatively impacted communities, threatening sustainability and causing decreased property values, vandalism, and community confidence. In Malaysia, historic preservation catalyses economic revival.

ii) Development of commercial heritage: Commercial property rehabilitation is prevalent in major urban centres, blending historic sites with new structures for office and retail. The inner-city neighbourhood is a successful example of commercial heritage development, attracting new investment and fostering economic growth.

iii) Revitalisation of downtown areas: Downtowns often have vacant historic buildings in disrepair, posing a significant risk to communities and the value of their historic resources. Economic development agencies are creating strategic plans to revive economic growth by preserving historic structures and renovating commercial buildings, theatres, town halls, and gathering places. Revitalising downtowns involves heritage conservation, investment, and historic preservation, which can also open new economic opportunities.

iv) Management of urban sprawl: The Malaysia Smart City Framework (MSCF) is a national-level framework for developing and implementing smart cities, focusing on seven key components: Smart Economy, Smart Living, Smart Environment, Smart People, Smart Government, Smart Mobility, and Smart Digital Infrastructure. The MSCF aims to address urban challenges, improve the well-being of city dwellers, and enhance the overall quality of life in cities.

v) Economic impact as an added value: Economic development involves implementing programs that benefit the economy. Heritage preservation can boost property values, create jobs, increase tax revenues, and enhance the quality of life in a community. Rebuilding is often more cost-effective and profitable than renovating, making historic preservation an asset.
vi) Heritage tourism and culture: The tourist sector is crucial for historic preservation and cultural heritage tourism, focusing on landscapes, arts, and lifestyles. Tourism-driven regeneration depends on resources, investment, and political will. Montreal is a leader in recognising and advancing built heritage, improving living standards, and diversifying the economy.

2.3 Kuala Lumpur Heritage Agenda

ICOMOS Malaysia (2020) urges Kuala Lumpur City Hall (DBKL) to take seriously the preservation of the city's heritage identity. Kuala Lumpur's heritage is its spirit, and poor planning decisions and insensitive construction have severely damaged it. Instead of using the city's historical components as planning tools, ICOMOS Malaysia (2020) advocates for 'heritage protection, strengthening, and enhancement' as one of the seven key goals of the Structure Plan. The key goals are:
i) Innovative and Productive (urban economic development)
ii) Inclusive and equitable (inclusive community)
iii) Rooted in Heritage (heritage protection, strengthening and enhancement)
iv) Integrated and Sustainable Development (land use planning)
v) Healthy and Vibrant (green areas, open land and urban design)
vi) Climate Smart and Low Carbon (environmental aspects and low carbon practice)
vii) Efficient and Environmentally Friendly Mobility (public transport and traffic management)

Kuala Lumpur's "A City for All" initiative aims to preserve and celebrate the cultural heritage of its diverse population through ancient architecture, neighbourhoods, festive events, and culinary offerings. To achieve this, the city should describe its legacy as more inclusive and diverse.
i) 'A City for All' concept: Chapter 2 of KLDSP2040 highlights Kuala Lumpur's focus on economic value, R&D, digital technology, and accessibility.
ii) Promoting the image and identity of Kuala Lumpur: Kuala Lumpur's cultural identity relies on understanding architectural styles, analysing influences, and preserving these remarkable assets.
iii) Promote unity and pride through Kuala Lumpur's heritage: Preserving cultural artefacts helps future generations learn wisdom and traditions, and inspires unity in hardship-ridden communities.

2.4 The Relationship Between Adaptive Reuse and Sustainability

Adaptive reuse of buildings is crucial for maintaining economic, social, and environmental viability in rural and urban areas. A recent study found that green adaptive reuse is the best option for historical structures. However, the Malaysia Green Building Index (GBI) does not address significant environmental factors, including reusing historic structures. Key environmental factors in designing environmentally friendly elements in adaptive reuse projects include energy efficiency, interior environmental quality, sustainable site planning and management, material and resource efficiency, and water efficiency.

According to a recent study, adaptive reuse is a method of sustainable urban regeneration that helps a building last longer by transforming it through the repurposing of its valuable components. Moreover, it is restoring an old or obsolete structure while preserving its historical and cultural heritage and infusing it with new vitality in line with the spirit and necessities of the times (Abdulameer & Abbas, 2020). The relationship between the benefits of adaptive reuse and the pillar of sustainable development is shown in the table below:

Table 1. The pillar for sustainable development in relation to adaptive reuse

Pillars of sustainable development	Benefits of adaptive Reuse
Environmental	(i) Enhances the environment
Environmental-Economic	(i) Reduced resource, energy, and emissions consumption. (ii) Demand for older, well-maintained structures is increasing. (iii) Revitalise places that are underutilised. (iv) Over a lengthy period, the energy embodied in structures is recovered.
Economic	(i) Raises economic development. (ii) Cost-effectiveness.
Economic-Social	(i) Buildings' life cycles are being extended. (ii) Adding value to community resources by re-purposing under-utilised real estate.
Social	(i) Continuity of culture, identity, and sense of place (ii) Improving the built environment's aesthetic attractiveness. (iii) Heritage preservation and presentation.
Social-Environmental	(i) Land usage is declining, and cities are deteriorating. (ii) Heritage regions, as well as architectural and technical advancements, are being revitalised and developed.

Source: Abdulameer & Abbas, 2020

3.0 Methodology

To obtain data to meet the research objectives of this study, case studies and interviews are used. The case studies are drawn from reports and articles on the selected cases. Moreover, the case studies will also include on-site observation analysis from site visits. Interviews were conducted onsite with the stakeholders of REXKL and Central Market, the architects, and the building's owner to understand and verify the sustainability elements implemented in the adaptive reuse project. The instruments used in this study will focus on collecting significant data in the following areas: environmental impact, economic impact, and social impact.

4.0 Results and Discussion

The study area selected was within a 400-metre radius of Pasar Seni (Old Central Market). For this study, two prominent adaptive reuse projects were chosen: the Central Market and REXKL. Document analysis and articles on the conservation projects for both buildings were analysed to achieve the objectives of the study, which are: to investigate the relationship between adaptive reuse of historical buildings and sustainability and to identify how the implementation of adaptive reuse in historic buildings impacts the study area's sustainability. Tables 2, 3, and 4 illustrate the findings of the sustainable elements studied. Table 2 shows the analysis results on the environmental impact of adaptive reuse based on the criteria discussed earlier in Table 1. The results are based on the reports and supported and verified during the interview session.

Table 2. Elements of Adaptive Reuse in Environmental Sustainability and Its Impacts

Elements of adaptive reuse in environmental	Case Studies and Justifications	
	Pasar Seni (Central Market	REXKL
Contribution to the environment	(i) The reuse of old buildings reduces pollution. (ii) Reduction in the use of natural resources. (iii) Enhances network infrastructure. (iv) Lowers carbon emissions and energy demand. (v) Controls urbanisation.	
Environmental-Economic	(i) Strategic spatial planning of spaces and zones for art exhibitions, shopping areas, stalls, and kiosks. (ii) Revitalises and develops surrounding heritage areas through innovative spaces for tourism and the cultural industry.	(i) Preserved urban landscape while maintaining open spaces surrounding the site by providing functional spaces such as outdoor lounging and food trucks. (ii) An open entrance concept links simultaneous indoor and outdoor activity, allowing for more harmony between spaces.
Economic	(i) The Art Deco architectural style adapts to local conditions, which represents modernity and rejects convention. (ii) Folding entrance gates and ornamental panels allow for more ventilation. (iii) Colorex glass blocks heat and provides sufficient natural lighting, while preventing rain from entering. (iv) Reinforced concrete roof surface maintains building temperature.	(i) The open space concept throughout the building is restored from previous building use, allowing for more ventilation and functionality of spaces. (ii) Enhancement of façade design while retainingthe original structure attracts attention and prevents visual pollution.
Economic-Social	(i) Elimination of decay and dilapidation to restore the architectural style of a structure. (ii) The installation of new electrical or mechanical components was done in accordance with the technical and structural requirements of the new building's functionality. (iii) The lifetime of the building is extended through maintenance and repair.	

Considering the evidence presented, each building is unique in how newly developed building functions are incorporated and in the symbolic elements incorporated into the materials and design, which relate to the surrounding environment. On the other hand, their similarities regarding how upkeep and repairs contribute to environmental sustainability are universal. The elements demonstrate the integration between the building's new function and the environment. The sustainability of the building is assessed using the materials used for repair and new work. In addition, the new structure should reduce visual pollution and consider ways to extend its physical lifespan through maintenance and repair (Arief & Thahir, 2020).

Table 3. Elements of Adaptive Reuse in Economic Sustainability and Its Impacts

Elements of adaptive reuse in economic sustainability	Case Studies and Justifications	
	Pasar Seni (Central Market	REXKL
Contribution to the environment	(i) Reduced usage of natural resources benefits the economy. (ii) It gives attention to historical and cultural elements, which aid the tourism industry.	

	(iii)	Extending the building's life through maintenance and repair ensures its long-term economic viability.
Environmental-Economic	(i)	Adaptive reuse contributes to new businesses.
	(ii)	Job opportunities will sustain the economic development of the country.

Regarding economic sustainability, adaptive reuse implementation yields similar outcomes (Table 3). Adaptive reuse in economic sustainability includes the reuse of structures and job opportunities (Figures 1 and 2). Job creation and an economical construction approach that reuses scrap materials help lower the cost of new material purchases. The result below shows that, economically, the adaptive reuse of heritage buildings has contributed to significant sustainable impacts on the area. Adaptive reuse can be seen as the key to revitalisation and has contributed to providing longer economic viability through job creation and new business opportunities. This will help to retain the area for future use. Nonetheless, adaptive reuse has also affected the social sustainability of the areas, as shown in Table 4.

Figure 1: Adaptive Reuse carried out in Central Market includes the revitalisation and redevelopment of the surrounding area adjacent to the building, creating more economic potential serves as a whole package in the revitalisation of the area. The photo in the middle and left shows the adaptive reuse of space between Central Market and shophouses next to the building, which provides new business spaces, thus creating opportunities for job creation.

Figure 2: Adaptive Reuse of REXKL, a cinema that turns to cultural centre where modern, open settings in the building attract brand names to open their business. The place has become a favourite spot for the younger generation, and the modern approach fulfils the social needs of the current users.

Table 4. Elements of Adaptive Reuse in Social Sustainability and Its Impacts

Elements of adaptive reuse in social sustainability	Case Studies and Justifications	
	Pasar Seni (Central Market	REXKL
Contribution to the environment	(i)	The original and new functions of the buildings are acknowledged.
	(ii)	The building acquires a new purpose because of the symbolic building perception, architectural history, and artistic values.
	(iii)	The building acquires a new purpose because of its conservation, which includes cultural, authentic, and aesthetic value.
	(iv)	New building functions agree with the social and cultural structure of the city.
	(v)	Contribution towards building the social and economic value, such as economic, functional, educational, and social.
	(vi)	Contribution towards the city's publicity and identity
	(vii)	It prevents visual pollution, which impacts the environment and community.
	(viii)	Increases the building's life quality.
Environmental-Economic	(i)	Benefit users in terms of social, cultural, and economic.
	(ii)	Supports user activities and social life.
	(iii)	New building functions fulfil the social needs of the users.

4.0 Conclusions

This study investigates the relationship between adaptive reuse of historical buildings and sustainability. It finds that implementing adaptive reuse in architectural aspects, such as restoration, renovation, and maintenance, provides essential elements for adaptive reuse. The study also highlights the importance of considering the intangible qualities of historic buildings, such as their original functions, uses, spaces, and layouts. The second objective is to identify how adaptive reuse implementation impacts the sustainability of the study area. The study focuses on preserving and restoring historic buildings to make everyday life safer, cleaner, and more cost-effective. The Kuala Lumpur Heritage Agenda goals, such as a more vibrant design, intelligent and low-carbon practices, and efficient mobility, depend on preserving the city's identity and image. Economically, new developments in Kuala Lumpur's city center prioritize mega-projects that

counter the city's traditional commercial zones. The rental rate for office space in Kuala Lumpur has decreased by 0.2% due to oversupply and weak demand. Overproduction of useless goods to people in Kuala Lumpur poses a potential future danger.

Moreover, the social sustainability in adaptive reuse buildings examines how local and domestic visitors perceive their experience. The Kuala Lumpur Heritage Agenda includes six areas of tourism: culinary tourism, heritage trails, enclaves, arts scene, museum networks, heritage buildings, and cultural practices. However, these products should also reflect regional traditions, posing potential environmental and surrounding impacts. The study's findings can also be used to recommend ways to promote the adaptive reuse of historic structures for sustainable development, particularly in Kuala Lumpur and other cities with comparable potential for rapid growth. This will raise awareness of the need to protect historic or heritage buildings to maintain their historical importance. The research advises, in alignment with ICOMOS Malaysia (2020), the establishment of a comprehensive database to create an initial inventory encompassing all categories of heritage structures within the Kuala Lumpur boundary, particularly if property prices are incorporated. Although DBKL recognises the importance of preservation, restoration, and adaptive reuse as development strategies, the chapter's Inventory of Old Buildings in the Kuala Lumpur Draft Structure Plan 2040: BM2.3 Re-Enabling Function of Old Buildings (ICOMOS Malaysia, 2020) includes only obsolete structures.

Consequently, additional investigation is necessary to identify solutions to realise the property value of neglected or underutilised historic structures and fulfil the objectives of the Kuala Lumpur Heritage Agenda. Additionally, ICOMOS Malaysia (2020) posits that the expansion of tourism in Kuala Lumpur will be shaped by the city's authentic historical assets, which will be enhanced by superior interpretive services that enable tourists to both appreciate and comprehend the city's extensive past. To incorporate ICOMOS Malaysia's (2020) recommendations on economic sustainability heritage tourism offerings, which highlight the significance of historically accurate representations, should be addressed. The implementation of adaptive reuse is intimately associated with the tourism business, rendering the proposals pertinent. Moreover, increased financial support to bolster the city's identity and image in cultural preservation and tourism can further facilitate the city's development. ICOMOS Malaysia (2020) proposed that if DBKL were to provide innovative incentive packages to preserve and enhance Kuala Lumpur's historical resources, it would undoubtedly act as a catalyst for the city's image and identity, establishing a benchmark for heritage governance throughout Malaysia (ICOMOS Malaysia, 2020).

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Paper Contribution to the Related Field of Study

This paper contributes to studies in Urban Conservation, Regeneration Strategies, and Adaptive Reuse Strategies, which are currently seen as a sustainable approach to the preservation of built heritage in Malaysia.

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