The 14th International Symposium of the Malay Archipelago

ORGANIZED BY :

Universiti Teknologi MARA | Perak Branch

CENTRE FOR KNOWLEDGE & UNDERSTANDING OF TROPICAL ARCHITECTURE & INTERIOR
KUTAI

HOSTED BY :

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Sulawesi Selatan

e-ISSN : 3030-5543

PROCEEDINGS INTERNATIONAL SYMPOSIUM NUSANTARA SIMPORA XIV

'SIMPOSIUM NUSANATARA KE-14' | October 2023

STRATEGIC PARTNER :

USK Universitas Syiah Kuala

PROCEEDINGS INTERNATIONAL SYMPOSIUM NUSANTARA XIV

SIMPORA XIV: 2023

Organised by:

Centre for Knowledge and Understanding of Tropical Architectural and Interior (KUTAI)
Universiti Teknologi MARA Perak Branch
Seri Iskandar Campus, Perak, MALAYSIA

Diterbitkan oleh:

Unit Penerbitan UiTM Perak

Alamat:
Unit Penerbitan UiTM Perak,
Pejabat Jaringan Industri, Masyarakat dan Alumni (PJIMA)
Universiti Teknologi MARA, Perak Branch,
32610 Seri Iskandar Perak, Malaysia.

05-3742716

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Perpustakaan Negara Malaysia Cataloguing in Publication Data

No e- ISSN: 3030-5543

Cover Design: Ismail Hafiz Salleh
Typesetting : Nur Huzeima Mohd Hussain

PROCEEDINGS SIMPORA XIV 2023: EDITORIAL BOARD

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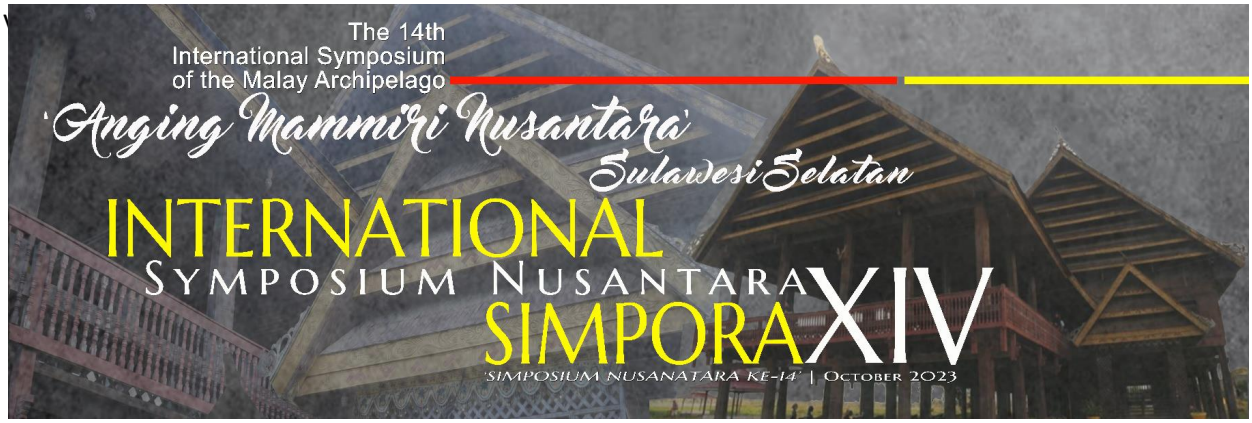

EXPLORING THE SUITABILITY OF TRADITIONAL MALAY HOUSES FOR ADAPTIVE REUSE ACROSS VARIOUS FUNCTIONS

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Abstract: Traditional Malay houses provide an intriguing glimpse into the rich cultural heritage of Malay communities in Southeast Asia, presenting a harmonious blend of practical architecture, cultural values, and environmental adaptation. This investigation explores the unique characteristics and profound significance of these architectural wonders, shaped by centuries of diverse cultural influences. However, the processes of urbanization and modernization present challenges to their preservation, leading to initiatives such as heritage conservation and adaptive reuse efforts. Nevertheless, repurposing traditional houses for new functions raises concerns about striking a balance between heritage preservation and sustainable development. This paper examines the potential of traditional Malay houses for adaptive reuse, drawing from existing examples in Malaysia. The study initially involves evaluating numerous articles on adaptive reuse and traditional houses in Malaysia. The goal is to identify key challenges hindering the implementation of adaptive reuse for traditional Malay houses. Subsequently, multiple studies explore suitable functions for repurposing these houses. Additionally, a case study is conducted to showcase a successful instance of house reuse, focusing on Tok Abu Bakar Alang Ketak in Bota Perak. This investigation highlights the importance of careful planning, collaboration with experts, and a comprehensive understanding of the cultural, architectural, and historical significance of the house to overcome challenges and ensure a successful transformation with a variety of new functions.

***Keywords*:** Adaptive Reuse, Traditional Houses, Malay Houses, Repurpose, TABAK

INTRODUCTION

Traditional Malay houses provide a captivating insight into the intricate cultural heritage of the Malay communities in Southeast Asia. Beyond their structural form, these houses epitomize a seamless fusion of pragmatic architecture, cultural ethos, and ecological acclimatization. This paper endeavours to undertake a thorough exploration of the captivating realm of traditional Malay houses, unraveling their distinctive attributes and profound importance. Traditional Malay houses are a reflection of the diverse cultural influences that have shaped the region over centuries. They showcase the synthesis of Malay, Javanese, Sumatran, and even Chinese architectural elements, creating a distinctive architectural style that varies from region to region. Traditional Malay houses are thoughtfully designed to accommodate the tropical climate and cultural practices. The raised floor keeps the interior cool and dry, offering protection against floods and pests, while wide windows and elevated platforms encourage natural ventilation and air circulation, reducing the need for artificial cooling. Traditional Malay houses are not just shelters but also spaces that foster family bonds and community relationships (Hassin & Misni, 2023). The communal areas provide a platform for gatherings, ceremonies, and sharing daily life experiences. In today's rapidly changing urban landscape, traditional Malay houses face challenges due to urbanization and modernization. Efforts are being made to preserve these architectural treasures through heritage conservation projects, adaptive reuse initiatives, and educational programs. However, the adaptive reuse approach for traditional houses presents a unique set of obstacles at the intersection of heritage preservation and sustainable development. While repurposing these structures offers opportunities for sustainable urban growth, the delicate balancing historical authenticity with integrating modern functionality raises an important question: are traditional Malaysian houses well-suited for adaptive reuse with different functions? Therefore, this paper will explore the new functions of traditional Malay houses by investigating the existing traditional Malay houses in Malaysia that have been adapted to new uses.

1.1 Research Background

The trend of reusing and adapting of buildings has been clearly declared in conservation practices. As known by practitioners, adaptive reuse of existing buildings is a strategic approach to the conservation of the environment, as it extends the building’s life and avoids demolition waste, encourages the reuse of embodied energy, and provides significant social and economic benefits to society (Mohamed and K Alauddin, 2023; Alauddin et. Al., 2022). However, lack of attention given to adaptive reuse for traditional houses, especially concerning the use of timbers and preservation of symbolism. Reusing existing traditional house definitely has an extra meaning. The purpose is to preserve the historical and cultural significance of traditional houses as well as the architectural and symbolic richness of their components, for new generations to appreciate. The sustainability cannot be achieved unless the existing building stock is addressed carefully. Malaysia has a significant inventory of existing buildings and traditional houses. Unfortunately, most of these buildings have not been well-conserved, resulting in poor conditions and rendering many of them invaluable.

However, owners and practitioners still lack a point of reference for repurposing traditional houses for functions different from those of other existing buildings. Thus, there is an urgent need to suggest various functions that could be suitable for traditional houses. To address this problem, the adaptive reuse of existing buildings is seen as an important strategy for achieving sustainability and maintaining heritage value.

LITERATURE REVIEW

Adaptive reuse is seen as an important strategy in addressing the problem of obsolescence and degradation of heritage buildings. Essentially, adaptive reuse refers to the changes in a building's function or purpose from that of its current usage. Changing the existing functions of buildings is not a new phenomenon. A historical building is a significant resource that plays an important role in the economic, cultural, and environmental sustainability of rural areas, towns and cities.

2.1 Adaptive Reuse Terminology

Adaptive reuse usually refers to the reuse of the site or building for purposes other than those originally intended or designed. Douglas (2006) states that adaptive reuse is "broadly defined as any building work and intervention to change its capacity, function or performance to adjust, reuse or upgrade a building to suit new conditions or requirements". Adaptive reuse of buildings is one of the most important practices for maintaining existing buildings. This involves changing their purpose after the structure has reached its level of maturity within the life cycle. These new usages can offer economic, social, and cultural benefits to their environment. In addition, adaptive reuse is one approach to sustainability that preserves the durability of the original building materials and reduces its carbon footprint. Adaptive reuse addresses issues of conservation and preservation of the built heritage, as well as strategies and policies. Once old structures become inadequate for their functional and programmatic needs, adaptive reuse becomes a sustainable option for the reclamation of sites. In the context of building, adaptive reuse is a term that has been widely interpreted and defined by many researchers (Ball 2002, Mansfield 2002, Douglas 2006, Bullen, 2007). There are different interpretations for "adaptive reuse" known as conversion, retrofitting, adaptation, refurbishment, and rehabilitation. According to Bullen (2007), adaptive reuse is a 'rehabilitation, renovation or restoration work that does not necessarily involve a change of use' and it will 'extend the useful life and sustainability in a combination of improvement and conversion'. Wilkinson and Reed (2008) defined 'adaptive' as the activity of maintaining as much of the original as possible, improving performance to meet modern standards and changing needs, while Mansfield (2002) stated that refurbishment is a 'conversion describing a change in use'. Therefore, the terms 'refurbishment' and 'adaptive reuse' could have the same meaning.

2.2 Types of Traditional Houses in Malaysia

Figure 1 depicts numerous traditional houses in Malaysia. However, this section specifically concentrates on traditional houses constructed from timber and bamboo materials. As a preliminary study, approximately eight (8) traditional houses have been reviewed.

Figure 1 Types of Traditional Houses in Malaysia
Source: Public Sources

- Rumah Minangkabau in Negeri Sembilan features distinctive buffalo-horned roofs and elaborate wood carvings, embodying the cultural heritage and architectural legacy of the Minangkabau people in the region. A study by Hassin & Misni (2023) has shown that houses in Negeri Sembilan have a curved roof structure, slightly inclined to the left and right. Additionally, these houses feature a double-slope roof between the roof of the *rumah ibu* and *serambi*, with gable ends at both ends of the roof.
- The term 'Rumah Melayu' refers to the traditional houses commonly found among the Malay community in Malaysia, which reflect Malay traditional architecture and feature unique characteristics such as gabled roofs, wooden structures, and open spaces to promote air circulation and social interaction. Strategically planning the orientation of the building and openings, along with planting vegetation in the yard, can reduce direct solar radiation penetrating the house and encourage unimpeded wind flow (Hassin & Misni, 2023).
- The Iban house in Malaysia refers to the traditional houses built by the Iban ethnic community in Sarawak, which have unique features such as front stairs and long verandas.

- A Bidayuh house refers to the traditional houses constructed and inhabited by the Bidayuh ethnic group, primarily found in the Malaysian state of Sarawak. These houses typically feature raised wooden structures with thatched roofs, and often incorporate unique architectural elements and designs reflective of Bidayuh culture and traditions.
- Rumah Orang Asli refers to the traditional houses constructed and inhabited by the indigenous Orang Asli communities in Malaysia. These houses are often made from natural materials such as wood, leaves, and bamboo, and they feature unique designs that reflect the needs, culture, and traditional way of life of the Orang Asli communities.
- A Bajau house refers to the traditional houses built and inhabited by the Bajau ethnic group, primarily found in the coastal regions of Sabah, Malaysia, and other parts of the Sulu Archipelago. These houses typically feature raised wooden structures with thatched roofs, designed to withstand the coastal climate and frequent flooding. They often incorporate unique architectural elements and designs reflective of Bajau culture and traditions.
- A Kadazan Dusun house refers to the traditional houses constructed and inhabited by the Kadazan Dusun ethnic group, predominantly found in the Malaysian state of Sabah. These houses typically feature raised wooden structures with thatched roofs, and often incorporate unique architectural elements and designs reflective of Kadazan Dusun culture and traditions. They are adapted to the local climate and environment, with considerations for ventilation, natural light, and communal living spaces.
- A Melanau house refers to the traditional houses built and inhabited by the Melanau ethnic group, primarily found in the coastal regions of Sarawak, Malaysia. These houses typically feature raised wooden structures with thatched roofs, designed to withstand the coastal climate and frequent flooding. They often incorporate unique architectural elements and designs reflective of Melanau culture and traditions, such as intricate carvings and decorations.

This paper exclusively examines traditional Malay houses in Malaysia. Through the preliminary review, numerous instances of traditional Malay houses being reused for multiple functions have been identified, significantly contributing to the owners' income.

2.3 Issues Related to Reuse the Traditional Houses

Adaptive reuse refers to the practice of repurposing existing buildings, often older or historic structures, for new functions or uses. When it comes to traditional Malay houses, there are several issues to be considered. In particular, ten issues are highlighted in Figure 2 below.

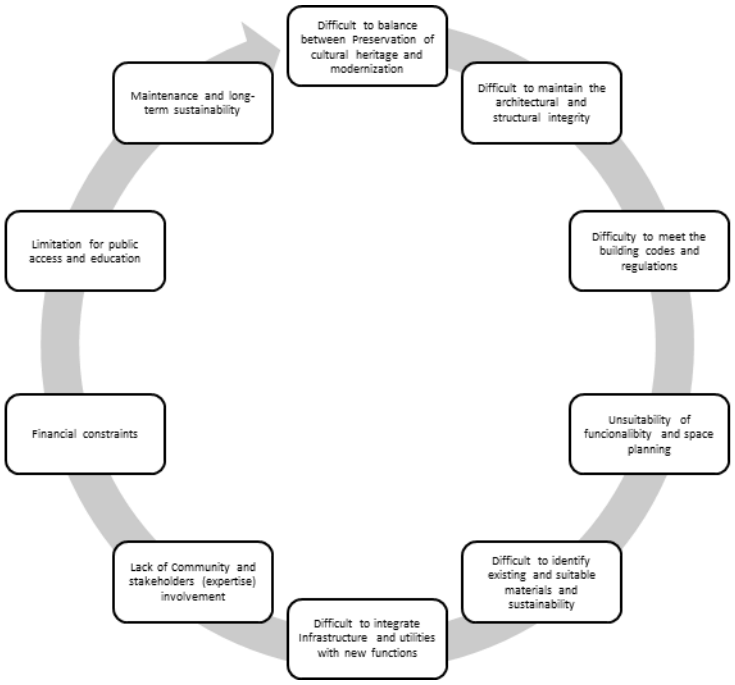

Figure 2 Issues in Adaptive reuse of traditional houses
Source: Author

Balancing the need for modernization with the preservation of the cultural and historical significance of traditional houses is a key challenge. Adaptive reuse should respect and protect the heritage value of these structures. Traditional houses have unique architectural features and construction methods, ensuring that any adaptive changes maintain their structural integrity and authenticity (Yohannes, 2020). Adapting traditional houses to meet modern building codes and safety standards can be challenging, as it often involves significant modifications to accommodate utilities, accessibility, and safety requirements (Mohamed, 2020). Besides, adaptive reuse projects can be costly, especially when historical preservation and restoration, securing funding and resources for these projects can pose a significant challenge. Selecting appropriate materials for renovations that align with the original construction methods can be challenging; furthermore, sustainable and environmentally friendly materials should be considered. Integrating modern infrastructure, such as plumbing, electrical systems, and heating/cooling, into traditional houses can be logistically challenging and may alter the original aesthetics (Hassin and Misni, 2023). Engaging with the local community, cultural experts, and preservationists is crucial; their input can help navigate sensitive issues related to the adaptive reuse of traditional houses. If traditional houses are adapted for use as museums or cultural centres, it becomes important to balance the needs of visitors with preservation concerns, while also providing public access and educational opportunities. After adaptive reuse, ongoing maintenance is crucial to ensure the longevity of the structure. Therefore, establishing a plan for regular upkeep is essential.

2.4 Traditional Malay Houses

The rapid modernization and changing lifestyle patterns in Malaysia have substantially diverged contemporary architecture from the fundamental design principles of traditional Malay houses (Zumahiran, Kassim & Abdullah, 2020). The post-World War II urban population growth in Tanah Melayu (later known as Malaysia) prompted the creation of new towns, leading to a departure from traditional architecture. Consequently, traditional Malay houses have faced persistent threats, undergone continuous transformations, and been abandoned. This has resulted in the gradual fading of the distinctive characteristics and values associated with traditional Malay houses. The vitality of maintaining traditional Malay houses for future generations should be considered through an adaptive reuse strategy. This strategy can serve as valuable references and guidelines in the present-day context, enabling the houses to be repurposed with functions that suit the new generations while sustaining their historical and architectural value. The architecture of the traditional Malay house has interpretations that refer to nature (Zumahiran, Kassim & Abdullah, 2020). Figure 3 below illustrate the climatic design of traditional the Malay house.

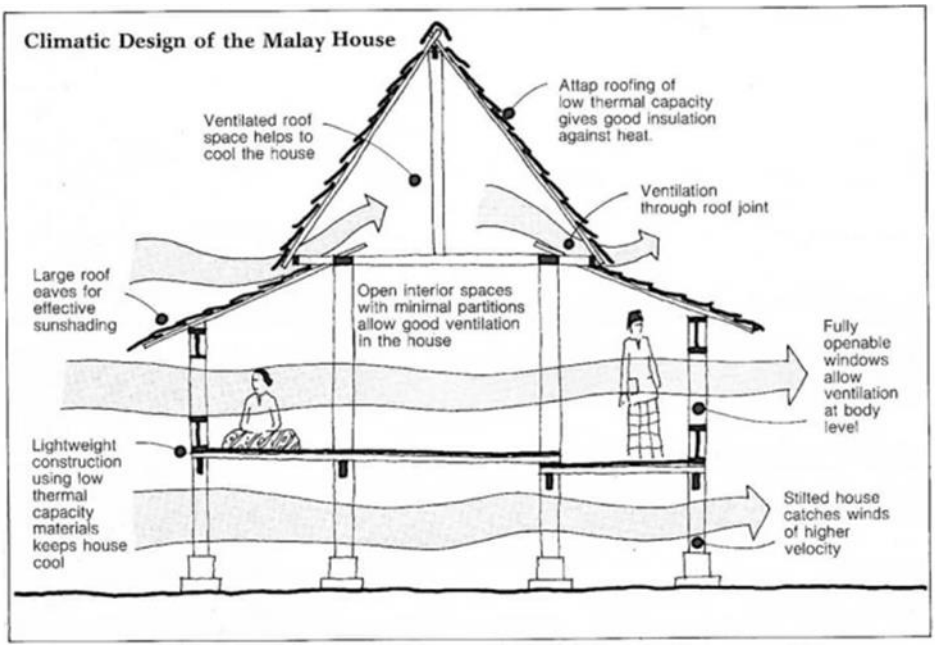

Figure 3 Climatic Design of Malay House
Source: Public Sources

2.5 Suitability of New Functions for Traditional Malay Houses

According to the layout of this traditional Malay house, the reuse potential is quite limited. Nevertheless, the concept of adaptive reuse remains flexible and can be seamlessly integrated with modernity to appropriately repurpose traditional Malay houses. As a result of the initial review through previous research, many traditional houses can be adapted for various functions, as illustrated in Table 1.

Table 1: Reuse with new functions for Traditional Malay House

New Function (Adaptive Reuse)	Description	Sample Photo
Residential Housing	Traditional houses can be adapted for modern residential purposes. They may be converted into single-family homes, apartments, or guesthouses while retaining their historical charm.	 Random House
Cultural Centres and Museums	Traditional houses can become cultural centres or museums, showcasing local heritage, art, or history. They provide a platform for preserving and sharing cultural knowledge.	 Mahsuri Traditional House, Langkawi
Restaurants and Cafes	Traditional houses can be transformed into restaurants, cafes, or tea houses, offering a unique dining experience in a historic setting.	 Chef Shukri's House, Langkawi
Art Galleries and Studios	Adaptive reuse can turn traditional houses into art galleries or studios for artists, promoting local art and culture.	 Rumah Tok Abu Bakar Alang Ketak (TABAK), Perak

Tourist Accommodations	Traditional houses can serve as boutique hotels, inns, or vacation rentals, attracting tourists seeking an authentic cultural experience.	 LaBon Ton Antique Wooden Villas, Langkawi
Community Centres	They can be repurposed into community centres for local gatherings, workshops, and events, fostering a sense of community.	 TABAK, Perak
Heritage Preservation Offices	They can be repurposed into house offices dedicated to heritage preservation, where experts work to protect and document local culture and history.	 Hang Tuah Village in Kampung Duyong, Melaka
Educational Facilities	Traditional houses can become schools, libraries, or educational centres, facilitating learning, and preserving cultural knowledge.	 TABAK, Perak

Religious or Spiritual Spaces	Traditional houses can be converted into places of worship, meditation centres, or shrines, depending on the cultural context.	 Masjid Kg Laut in Nilam Puri, Kelantan
Guesthouses or Homestays	Traditional houses can be converted into guesthouses or homestays, offering travellers an authentic cultural experience and supporting local tourism.	 D`Kampungstay Teratak Kasih Bonda, Perak

Source: Author

However, several other functions are still being applied in Malaysia, and they are currently in the process of identification. These functions have transitioned to the following functions as illustrated in Figure 4.

Figure 4 Other Possible Functions for the Reuse of Traditional Malay Houses
Source: Author

RESEARCH METHODOLOGY

This study employs various methodologies to execute and complete the research. Initially, it involves evaluating multiple articles concerning adaptive reuse and traditional houses in Malaysia. This includes scrutinizing and identifying key challenges hindering the

implementation of adaptive reuse for traditional Malay houses. Subsequently, several studies exploring suitable functions for repurposing traditional Malay houses will be conducted. Furthermore, a case study will be undertaken to illustrate a successful instance of house reuse, focusing on Tok Abu Bakar Alang Ketak in Bota, Perak. This exemplifies successful adaptive reuse, wherein the traditional house has been transformed for multiple functions, as depicted in Table 1.

CASE STUDY OF RUMAH TOK ABU BAKAR ALANG KETAK (TABAK), BOTA, PERAK

3.1 Background

This house is located on the banks of the Perak River in Bota Kiri within the sub-district of Bota, Perak Darul Ridzuan. It was built by the homeowner, Tok Abu Bakar Alang Ketak, along with several other craftsmen in the 1920s. The house was constructed in the architectural style known as the Perak Roofed Gabled House (Rumah Limas Bumbung Perak or RLBP). This architectural style is prevalent throughout the state of Perak, especially along the Perak River.

Figure 5 TABAK in 1920s
Source: Owner's Document

From a geographical perspective, this house is situated on the banks of the Perak River at coordinates 4°20'47.6"N 100°52'35.6"E (4.346545, 100.876559) in Bota Kiri, Sub-District of Bota, Central Perak District, Perak Darul Ridzuan. Like many traditional houses in Perak, it is river-oriented, with its front facing the river. The river is a significant element in the development of settlements. Besides being a water source, the river serves as the primary transportation route connecting villages and small towns along the Perak River. It is an important source of local and regional economic activity. The TABAK house is designed with several essential spaces, including the veranda, entrance hall, the Mother's Room (Rumah Ibu), the Selang Room, and the Kitchen House (Rumah Dapur).

3.2 Conservation Works

In 2019, TABAK underwent a conservation effort, transforming it into a gallery and educational hub dedicated to traditional houses, traditional architecture, and related subjects. Since then, a range of activities and events had taken place at TABAK from 2019 to 2023.

3.3 Reuse Activities in TABAK

As explained earlier, various new functions can be applied to traditional Malay houses. After examining the functions of the TABAK house, it has shown complete success. The TABAK house has undergone conservation and has been equipped with multiple functions. Among the successes achieved by TABAK are academic activities, history workshops, and painting contests, where it serves as the competition base. In addition, TABAK has been successfully transformed into a gallery for paintings and arts, attracting history enthusiasts and lovers.

Figure 7 Educational Activities

Figure 8 Workshop Activities

Figure 9 Competition Activities

Figure 10 Gallery Activities

Figure 11 Arts Galleries

CONCLUSION

Adaptive reuse of traditional houses offers a chance to celebrate and preserve cultural heritage while breathing new life into historic structures. However, it requires careful planning, collaboration with experts, and a deep understanding of the cultural, architectural, and

historical significance of the house to overcome the challenges and ensure a successful transformation. Moreover, adaptive reuse of traditional houses not only breathes a new life into these historic structures but also enriches communities by providing spaces for cultural, educational, and economic activities. The choice of function often depends on the house's location, historical significance, and the needs and aspirations of the local community. This research serves as a preliminary step toward future national grant applications.

ACKNOWLEDGMENT

This research extends special acknowledgments to Puan Noor Asiah, the owner of TABAK, and Assoc. Professor Dr Mohd Sabrizaa Abd Rashid for providing detailed information about TABAK.

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