

THE IMPORTANCE & CHALLENGES OF BOROBUDUR VERNACULAR ARCHITECTURAL VALUES

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Abstract

The rapid development of Borobudur as a major tourist destination has resulted in significant changes to the cultural landscape and infrastructure, posing challenges to the preservation of its vernacular architecture. This study explores the significance and challenges of Borobudur's vernacular houses, which reflect the region's cultural heritage and sustainable design principles. Data was collected through literature reviews, field observations of 14 traditional houses in five villages, and interviews with homeowners and artisans. The findings highlight three main challenges: material selection, where natural resources such as bamboo and jackfruit wood are becoming increasingly scarce due to over-exploitation and land-use change; traditional spatial arrangements, which are becoming less relevant as younger generations migrate and abandon traditional livelihoods; and declining pride in traditional houses, exacerbated by perceptions of inadequacy and policies promoting modern housing. Despite these challenges, Borobudur's vernacular houses play a vital role in maintaining the Outstanding Universal Value (OUV) of the Borobudur temple complex by preserving cultural identity and sustainable practices. Recommendations include raising awareness through educational programmes and campaigns, reviving traditional craftsmanship and sustainable material sourcing, promoting community and government support through subsidies and policies, and integrating vernacular architecture into sustainable tourism initiatives. These measures aim to reconcile tradition with modern needs and ensure the preservation and adaptive reuse of Borobudur's vernacular architecture. By comprehensively addressing these challenges, this study underscores the need to protect Borobudur's cultural heritage while promoting sustainable development and enhancing its resilience in a rapidly modernising world.

Keywords: Borobudur, cultural heritage, vernacular architecture.

A. INTRODUCTION

Vernacular architecture is a design and construction approach that emerges organically in response to local requirements, environmental circumstances, and the cultural context of a community. It demonstrates human adaptation to geographical, climatic, and social conditions through designs that are simple yet functional (Nguyen, Tran, Tran, & Reiter, 2011; Nursanty, Rusmiatmoko, & Widiartara, 2023). This form of architecture reflects the resilience and ingenuity of local communities, showcasing their ability to harmonize functionality with aesthetic simplicity. The use of locally available materials, traditional construction techniques, and alignment with regional climates are hallmarks of vernacular architecture (Asadpour, 2020; Philokyprou &

Michael, 2021). These characteristics contribute to superior energy efficiency and thermal comfort when compared to conventional modern buildings (Martínez-Molina, Tort-Ausina, Cho, & Vivancos, 2016). By drawing upon local expertise, this architectural approach contributes to sustainable design practices through the utilisation of local resources, craftsmanship, and the reduction of environmental impacts (Almusaed, Almssad, Almusaed, & Almssad, 2021; Rahim, Munir, Marasabessy, & Darmawijaya, 2023)

Borobudur's vernacular houses are traditional structures that represent the rural lifestyle of the communities in the Borobudur region. These houses are characterised by their simple design, which blends in with the local environment and uses natural materials such as bamboo, wood and brick. They stand as living examples of cultural resilience and sustainable adaptation. The walls are typically made of gedek (woven bamboo) or gebyok (carved wooden panels), with limasan or kampung style roofs covered with clay tiles. These houses usually face north or south to maximise natural light. The spacious yards, often called latar, serve as multifunctional spaces for work or livestock. The layout typically includes a main living area for resting, a langgar for worship and a pawon for cooking. Emphasising natural elements and harmony with the environment, these houses are surrounded by fruit trees and hedges, reflecting the cultural values and sustainable living practices of the local community (Adishakti, 2023; Nadagitalia, 2024).

The vernacular houses of Borobudur are inextricably linked to the Outstanding Universal Value (OUV) of the Borobudur Temple complex, as they exemplify the cultural landscape that surrounds this UNESCO World Heritage Site. These vernacular houses reflect not only the architectural adaptation of local communities to their environment but also harmonize with the cultural and visual integrity of Borobudur. These houses serve as tangible connections to the historical and spiritual significance of the area, complementing the sacred aura of the temple and contributing to the preservation of its rural and cultural setting. Their continued existence supports the integration of traditional practices with modern conservation efforts, ensuring that the cultural identity and heritage of Borobudur are preserved alongside its monumental significance (Adishakti, 2023).

Given the importance of Borobudur's vernacular houses to the identity and heritage of Borobudur itself, this study aims to explore their significance and challenges from different perspectives, including their cultural, environmental, and socio-economic dimensions. By examining the interplay between traditional practices and modern demands, the research seeks to identify strategies to ensure their preservation while supporting sustainable development in the region.

B. RESEARCH METHOD

This study employs a descriptive qualitative methodology with the objective of exploring the potential and challenges associated with Borobudur's vernacular architecture. The data were collected through a combination of literature reviews, field observations of 14 vernacular houses, and interviews with key informants, including homeowners and carpenters. The selected vernacular houses are situated in five villages within the Borobudur region: The selected vernacular houses are located in five villages in the Borobudur area: Candirejo, Karanganyar, Teksongo, Wringinputih, and Giritengah. The selection criteria were based on houses exhibiting distinctive roof typologies, namely limasan or kampung, which reflect the unique vernacular characteristics of Borobudur. The research identifies a number of variations in vernacular houses,

distinguished by the materials used in their construction, their residential functions, and the occupations of the homeowners. This methodological approach combines ethnographic observation with architectural analysis, providing a comprehensive understanding of the interplay between cultural heritage and local livelihoods in Borobudur's architectural landscape. It underscores the importance of preserving traditional structures while addressing contemporary challenges.

C. FINDINGS AND DISCUSSION

1. The Importance

The importance of Borobudur's vernacular architectural values lies in its ability to represent the harmony between local culture, the environment and the history of Borobudur as a World Heritage Site. These vernacular houses not only reflect the rural lifestyle of the local communities, but also demonstrate adaptation to climate, the use of local materials such as bamboo, wood and bricks, and traditional construction techniques. Borobudur's vernacular houses also play an integral role in the Outstanding Universal Value (OUV) of Borobudur, which encompasses cultural landscapes, traditions and sustainability. Their existence supports the preservation of cultural identity through simple yet functional designs that remain relevant in the midst of modernisation. By maintaining these elements, Borobudur's vernacular architecture not only preserves cultural heritage, but also contributes to environmental sustainability and the transmission of traditional values to future generations.

2. The Challenge

Rumah vernakular Borobudur menghadapi berbagai tantangan signifikan yang mengancam keberlanjutan dan kelestariannya sebagai bagian integral dari lanskap budaya Borobudur. Tantangan-tantangan ini dapat dirangkum dalam tiga aspek utama: pemilihan material, pengaturan tata ruang tradisional, serta peran rasa kepemilikan dan kebanggaan dari masyarakat setempat. Masing-masing tantangan ini membutuhkan perhatian khusus karena memiliki dampak yang kompleks terhadap kelangsungan arsitektur tradisional dan identitas budaya Borobudur.

a. Material Selection and craftsmanship

The choice of materials used in the construction of Borobudur's vernacular houses highlights a unique reliance on local natural resources. Materials such as bamboo, jackfruit wood and clay are commonly used for both structural and non-structural elements, including walls and roofs. These materials reflect sustainable practices and reinforce the connection between architecture and the environment. However, the availability of these resources has become increasingly limited due to over-exploitation and land-use changes. For example, bamboo, once abundant, is now harder to come by due to deforestation and the reduction in the amount of land available for its cultivation. Similarly, jackfruit trees, whose wood is a key material, are now scarce as agricultural land is converted to other uses.

An additional challenge is the decline of skilled carpenters. Traditional skills, once passed down through generations, are gradually disappearing, replaced by faster but less culturally appropriate modern building methods. This combination of diminishing natural resources and dwindling skilled labour exacerbates the difficulty of preserving Borobudur's vernacular houses in their authentic form. Efforts to revitalise traditional skills through training programmes and to

ensure a sustainable supply of materials through reforestation initiatives are essential to meet this challenge.

b. Traditional Spatial Arrangement

The spatial organisation of Borobudur's vernacular houses reflects not only functional needs, but also the lifestyle, occupations and traditions of the local community. Traditionally, the layout of these houses is based on the occupations of the owners, such as farming, tobacco making or pottery making. Open spaces such as the *latar* (front yard) are often used for daily work activities, while the kitchen or *pawon* is designed to support traditional cooking practices using wood-burning stoves.

However, modern lifestyle changes have led to significant shifts in the use of these spaces. Younger generations are increasingly moving away from traditional family activities in favour of urban or formal employment. This migration results in the neglect of traditional spatial arrangements that are rich in cultural significance. As a result, many houses that once served as centres of daily life and work have lost their original purpose, with some being abandoned or falling into disrepair. To combat this, it is essential to reintroduce traditional layouts into modern contexts, ensuring their functionality while preserving their cultural essence.

c. the Sense of Belonging and Cultural Integrity

A strong sense of belonging and cultural integrity among local residents plays a crucial role in the preservation of Borobudur's vernacular heritage. These houses are not only places to live, but also symbols of the community's cultural identity. However, challenges arise when residents perceive their traditional houses as inadequate or outdated, especially when compared to modern housing. This perception is often reinforced by government policies that promote modern housing as a sign of progress. Such sentiments are further exacerbated by societal pressures that equate modernity with success, leading to a gradual erosion of appreciation for traditional architecture.

This creates a conflict between maintaining tradition and adapting to modern standards, which are often perceived as more desirable. Feelings of inferiority or shame about traditional houses further threaten their existence, as residents are more likely to replace them with modern structures rather than preserve their historical and cultural values. Addressing this issue requires a multi-faceted approach, including fostering local pride through cultural festivals and exhibitions showcasing the value of vernacular architecture. These activities can highlight the unique aesthetic and historical importance of traditional houses, while engaging younger generations in heritage preservation efforts. To combat this, it is essential to restore a sense of pride in traditional houses through public awareness campaigns, heritage education programmes and the promotion of vernacular architecture as a valuable cultural asset.

3. Recommendation

Based on the findings regarding the challenges faced by Borobudur's vernacular houses, the following recommendations have been formulated in accordance with the guidelines (ICOMOS, 1999) and insights gained from local studies of Borobudur's traditional architecture:

a. Raising Awareness and Promoting Sustainable Design

Efforts to raise public awareness of the significance of Borobudur's vernacular houses can be achieved through educational programmes, workshops and conservation campaigns. By instilling

a deep understanding of the cultural and architectural values of these houses, local communities can foster a stronger commitment to preserving this heritage. These programmes should include participatory activities, such as community discussions and hands-on restoration projects, to actively engage locals in the preservation process. Incorporating vernacular architecture into school curriculums can also instill appreciation among younger generations, ensuring long-term awareness.

Holistic conservation efforts are essential. For example, reforestation programmes to plant bamboo and jackfruit trees can ensure a sustainable supply of raw materials essential for traditional construction. Equally important is the need to train younger generations in traditional building techniques, reviving skills that are in danger of being lost. Public campaigns emphasising the cultural and aesthetic significance of vernacular houses can also rekindle community pride in their cultural heritage. Workshops focused on both traditional methods and innovative uses of natural materials can provide additional opportunities for skill enhancement and creative design solutions, fostering a deeper connection to the local environment.

In addition, the use of environmentally friendly designs needs to be prioritised. Vernacular houses, characterised by the use of natural materials such as bamboo, jackfruit wood and clay, and layouts adapted to the local climate, should receive continued support. This support could be realised through government incentives to encourage communities to use traditional materials and designs, complemented by sustainable reforestation programmes.

b. Promoting Appreciation and Protection by Communities and Governments

The full appreciation and protection of Borobudur's vernacular houses requires the active participation of both local communities and government agencies. Communities can contribute by maintaining and preserving their traditional houses, often through collective efforts such as community restoration projects (gotong-royong). Community-led initiatives, supported by workshops and training, can ensure the continuation of traditional craftsmanship while fostering local pride. These activities should be integrated into broader conservation programs to maximize their impact.

Governments, on the other hand, need to establish regulations that protect traditional houses from inappropriate alterations or demolition. These regulations should also ensure that modern construction in the Borobudur area respects the integrity of the local architectural heritage. Moreover, governments should facilitate collaboration between conservation experts, architects, and local leaders to design policies tailored to the region's unique needs. Incentives like micro-financing programs can empower homeowners to undertake preservation efforts without financial strain. In addition, financial assistance in the form of subsidies, tax breaks or renovation grants can help homeowners preserve their traditional houses while maintaining the authenticity of their design and materials. Government policies should emphasise the cultural and historical significance of vernacular houses to prevent their erosion through uncontrolled modernisation.

c. Integrating Tradition with Sustainable Tourism

Integrating local traditions with sustainable tourism is a promising way to strengthen Borobudur's traditional houses. These houses can be transformed into homestays or cultural activity centres, providing authentic experiences for visitors while generating economic benefits for local communities. This dual use not only supports community livelihoods, but also fosters pride in cultural heritage. Moreover, this integration can create opportunities for knowledge exchange,

where visitors learn about traditional practices, and locals gain insights into sustainable tourism management. Such engagement fosters mutual respect and collaboration, enriching both the community and visitors' experiences.

However, it is imperative that tourism activities do not compromise the key elements of traditional houses, including their architectural design, spatial arrangement and use of original materials. Sustainable tourism regulations should be enforced to ensure a balance between economic use and cultural preservation. To achieve this balance, monitoring mechanisms should be implemented to assess the impact of tourism on these cultural assets over time, ensuring minimal disruption to their authenticity. Local stakeholders must be actively involved in decision-making processes to maintain cultural ownership and relevance. By adopting such an approach, traditional practices can continue to flourish and be passed on to future generations, while remaining relevant in the present day.

Addressing these challenges comprehensively will ensure that Borobudur's vernacular houses are not only preserved, but also harmoniously integrated with modern values. This integration will preserve Borobudur's cultural identity, keeping it alive and relevant for future generations, while promoting sustainable development and cultural tourism. Through the collaborative efforts of communities, governments and other stakeholders, Borobudur's vernacular heritage can continue to serve as a testament to its rich cultural and architectural heritage.

D. CONCLUSION

Borobudur's vernacular architecture is a vital cultural asset that intertwines environmental, historical, and social contexts. This study highlights the significance of these structures as they embody sustainable design principles, traditional craftsmanship, and cultural identity, all of which contribute to Borobudur's Outstanding Universal Value (OUV) as a UNESCO World Heritage Site. Despite their importance, vernacular houses face challenges such as the scarcity of natural materials, the decline in skilled craftsmanship, and shifting perceptions driven by modernization and urban migration. These factors threaten their preservation and continuity.

To address these challenges, the study underscores the importance of a comprehensive strategy encompassing awareness-raising, conservation, and adaptive reuse. Recommendations include fostering public appreciation of vernacular architecture through education and campaigns, ensuring sustainable material sourcing through reforestation and training programs, and protecting traditional houses with government policies and community initiatives. Additionally, integrating these houses into sustainable tourism can provide economic opportunities while maintaining their cultural and architectural integrity.

The integration of traditional practices with modern needs is key to preserving these cultural assets. By balancing heritage conservation with contemporary demands, Borobudur's vernacular architecture can continue to serve as a symbol of cultural resilience and sustainability. Future research should focus on innovative strategies to harmonize traditional construction techniques with modern technologies, ensuring these structures remain relevant in an evolving world. Through these efforts, the legacy of Borobudur's vernacular houses can be preserved and celebrated for generations to come, enriching the region's cultural and environmental heritage.

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