

Vernacular Architecture of Java: The Production and Reproduction of Space

Arif Budi Sholihah

Department of Architecture, Universitas Islam Indonesia

Email:arif.sholihah@uii.ac.id

Received	Reviewed	Accepted	Published
05.12.2023	28.01.2024	28.03.2024	31.03.2024

<https://doi.org/10.61275/ISVSej-2024-11-03-09>

Abstract

The study of vernacular architecture in Indonesia has predominantly focused on documenting architectural features, capturing the static morphology of spaces at specific times. However, the dynamic and ongoing process of spatial production in vernacular architecture has received minimal attention. This research investigates the production and reproduction processes of vernacular architecture in Java through a qualitative inquiry.

This research employs Henri Lefebvre's theory of the production of space as a reference to analyze how space is produced and reproduced, particularly in the context of vernacular architecture in Java. The methodology involves a visual observation, comparative visual analysis, and direct experience. Secondary data was collected through a literature study utilizing a Systematic Literature Survey. The theory of the production of space developed by Henri Lefebvre is used to analyze the evolution and transformation of vernacular architecture in Java over time.

It concludes that spatial practices, representations of spaces, and representational spaces, as conceptualized by Lefebvre are factors that influence the production and reproduction of space. However, research findings also reveal other factors: environmental, economic, pragmatic, hybrid and new spaces, and educational factors that influence the production and reproduction process in vernacular architecture of Java.

Keywords: Vernacular architecture, production and reproduction of space, Java, Indonesia

Introduction

The Indonesian Archipelago is situated at the crossroads of two continents, Asia and Australia, and two oceans, the Indian and the Pacific. It consists of more than seventeen thousand islands. This position of Indonesia affects the strategic economic value. More than that, for thousands of years, Indonesia has been a place of migration of people from mainland Asia and a crossroad of cultures. The region has historically served as a crucial migration pathway for people from mainland Asia, resulting in a diverse mix of cultures (Tumonggor et al., 2013). Studies on the settlement of Madagascar and the genetic ancestry of Indonesian people emphasize the historical significance of the archipelago as a genetic pathway connecting Asia and the Pacific (Kusuma et al., 2015; Tumonggor et al., 2013). Moreover, the cultural diversity and religious harmony observed in Indonesia can be attributed to the historical acceptance of various religions and beliefs in the archipelago (Saumantri, 2022).

The vast size of the Indonesian Archipelago, comparable to continental Europe, and its population density highlights its importance as a cultural and genetic crossroad (Natri et al., 2020). Overall, the geographical position and the diverse environmental characteristics of the Indonesian Archipelago have played a crucial role in the cultural and genetic exchanges that have characterized the region over millennia.

Indonesia, as part of the expansive Austronesian region shares numerous cultural similarities, with a vast area extending from Madagascar to the Pacific islands and from Taiwan to New Zealand in Eastern Australia. This cultural connection is evident in various aspects such as language, lifestyle and architectural practices. The country is a mosaic of over three hundred ethnic groups, including the Javanese, Sundanese, Malay, Batak, and the Balinese, among others, leading to a rich diversity manifested in language, dress, customs, and religious practices. Indonesia's cultural landscape is further enriched by at least six major religions, fostering a dynamic interplay of cultural identities within the nation (Karafet et al., 2010; Parlindungan et al., 2018; Wijaya, 2019).

Various ethnic groups, races and cultures across the archipelago underscores Indonesia's diverse cultural landscape, which is a source of national wealth and pride (Cahyani & Kusdarini, 2021). In 2003, the Fearon Analysis underscored Indonesia's cultural vibrancy by ranking it highly on the global cultural diversity index. This recognition highlights the country's significant position as a repository of cultural richness and diversity.

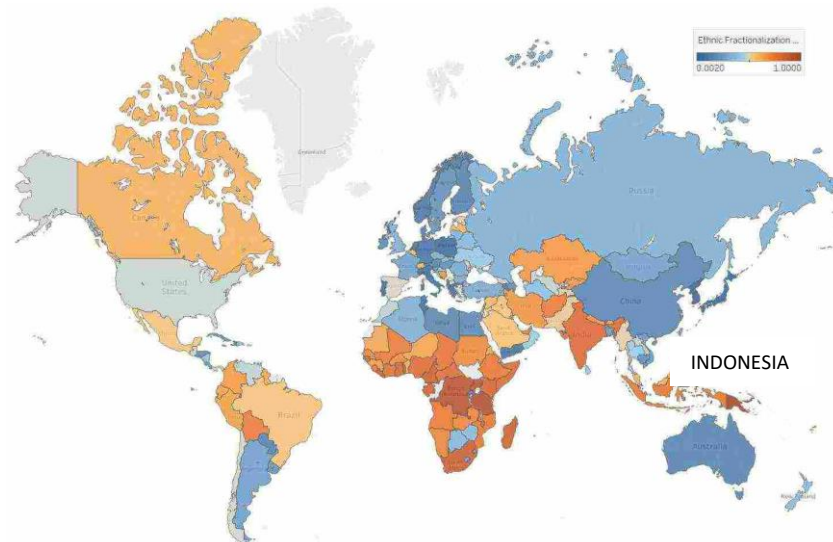


Fig. 1: Cultural Diversity Index
Source: Fearon ,2003

Indonesia's geographical situation is assumed to have a complex effect on the diversity of vernacular architecture, as it is influenced by various factors such as the environment, culture and history. Its varied geography, encompassing coastal areas, volcanic regions, and tropical woods has had an impact on the selection of the building materials, construction methods, and architectural styles in different parts of the country (Susanto et al., 2018). In addition, the varied geography of Indonesia has resulted in the emergence of numerous architectural styles in different areas, each showcasing distinctive attributes that mirror the local topography, climate, and cultural legacy (Manurung & Diananta, 2021).

Conducting research on vernacular architecture in Indonesia is urgently needed due to its abundant cultural legacy, diverse environment and the imperative to save the traditional construction methods. It is crucial to investigate this area in order to chronicle and analyse the diverse architectural styles found in the Indonesian archipelago. This will reveal the unique design components, construction techniques, and materials used in different places (Rahim et al., 2021; Sholihah & Endika, 2017).

Studying the development of vernacular architecture in Indonesia will question the prevailing belief that vernacular architecture remains unchanged. Although vernacular architecture is frequently viewed as static, it is actually a society that is always evolving. It is crucial to comprehend how vernacular architecture adjusts to and mirrors societal advancements throughout history in order to safeguard cultural heritage, encourage sustainable design methods, and cultivate a more profound admiration for the ever-evolving nature of architectural traditions (Manurung & Diananta, 2021).

Henri Lefebvre's theory on the production of space provides a thorough framework for comprehending the ever-changing characteristics of space and architecture. In this influential work, Lefebvre establishes the foundation for comprehending the intricate interaction of space, society and architecture. As Brenner & Elden (2009) point out, he presents a theoretical framework that continues to shape critical examinations in the fields of urban planning, architecture and social theory. Through the examination of the temporal production and reproduction of space, scholars can reveal the underlying mechanisms that shape vernacular architecture in Indonesia.

In this context, this research aims to investigate the dynamic process of producing and reproducing vernacular architecture in Java. Its objectives are:

1. To identify and describe the evolution process of vernacular architecture in Java
2. To analyze the influencing factors on the production and reproduction of vernacular architecture in Java

Theoretical Framework

Lefebvre, & Nicholson-Smith (1991) delineated three fundamental conceptualizations of spatial production: spatial practice, spatial representation, and representational space. Spatial practice encompasses the creation and replication of physical space within social structures, with a focus on the subjective experiences. The concept of space representation examines the connection between the creation of space and the established structure, which is shaped by prior knowledge, codes and signs, emphasizing what is perceived. Representational space examines the symbolic nature of space and how the society portrays it, investigating the underlying connections between space and the observer, with a specific emphasis on the cognitive processes.

Scientists have utilized his spatial triad in many situations. For example, Newlands (2021) has employed Lefebvre's spatial triad framework to examine the spatial power dynamics inherent in digital mapping employed by platform-mediated entities. In a similar vein, Fiorentino et al.(2023) have utilized them to investigate the manner in which social workers interact with digital environments while interacting with the clients. They have focused on various aspects of how social workers perceive, conceptualize, and inhabit these digital spaces.

The contributions of Lefebvre have transcended the realms of architecture and urban studies. Fuchs (2019) for example, has investigated the contribution of Lefebvre's humanist Marxism to a critical theory of communication. Similarly, Purcell (2022) has delved into the notion of democratic space within the framework of Lefebvre's ideas.

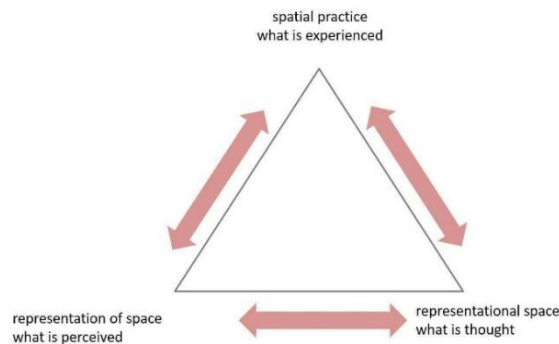


Fig. 2: The Production of Space Triad Conception
Source: adapted from Lefebvre, H., & Nicholson-Smith (1991)

The idea of *The Production of Space* proposed by Henri Lefebvre has been subject to critical analysis across multiple contexts. Taylor & Spicer (2007) highlighted the prominent emphasis placed on the interdependence of the three aspects of spatial production in readings of Lefebvre's theory. They argued that these dimensions should be regarded holistically rather than as distinct entities. This analysis highlights the intricate nature of spatial creation and emphasizes the importance of considering spatial practices, space representation, and representational space as interconnected elements of space production. In addition, Brenner & Elden (2009) examined the various scales of territorial organization in the context of capital mobility. They emphasized the presence of a generally stable and stationary geographical infrastructure that impacts spatial dynamics. This critique proposes that Lefebvre's theory should consider the complex hierarchical patterns of interconnectedness that influence the spatial arrangement inside capitalist systems. The aforementioned critiques serve to enhance the comprehension of Lefebvre's theory of spatial production, providing insights into its ramifications for power dynamics, territorial coordination, and economic mechanisms. Through active involvement with these critical viewpoints, scholars can enhance and modify Lefebvre's theory to effectively tackle the intricacies of spatial creation of vernacular architecture in modern settings.

Review of Literature

Examining regional vernacular architecture and building practices can provide important insights into the historical, social, and economic forces influencing each community's architectural practices and cultural identity (Vellinga, 2013). Vernacular architecture is defined by Rudofsky (1987) as architecture constructed by the locals or without the assistance of an architect. These architectural techniques are firmly based in local customs, materials, and environmental issues. They are sometimes defined as projects produced by natives or without the direct involvement of architects (Zamolyi, 2022).

Oliver (1997) asserts that the resource availability and environmental contexts of vernacular building are connected. The design of the building, which is dominated by the roof, is heavily influenced by local culture. Austronesians, including Indonesians, view a house not just as a place to live but also as a structure that represents important concepts such as multi-family housing, a microcosm of the macrocosm, a visual symbol of ethnic identity (expressed in the form and roof design), and the manifestation of the house of origin/house for the ancestors (Davison, 1998; Soejono, 1998). This is also consistent with the claim made by Rapoport (1969) that a home in a traditional society represents the social structure and regional cultures.

Early in the 20th century, when young European architects were practicing in Indonesia, the study of vernacular architecture in that country got its start (Sukada, 1998). By developing an architectural style that was both appropriate for the tropical weather and representative of the identity of Dutch East Indies (now Indonesia), they devised a novel strategy. Notable architects include Thomas Karsten, who designed the Yogyakarta Sonobudoyo Museum in 1935, Henri MacLaine Pont, who designed the East and West Halls of the Bandung Institute of Technology in 1919, and J. Gerber, who designed the Gedung Sate in 1920 (Handayani, 2020).

Through journal papers and conferences, a number of Indonesian researchers who study vernacular architecture have presented the findings of their research on the architecture of diverse regions within the past ten years. Java, Sunda, Sumatera, Kalimantan, Sulawesi, Bali, Lombok, Sumba, Moluccas, and Papua all have unique architectural styles, influences, and traits in common with their vernacular architecture. Each of these areas has a significant link between the natural environment and the space organization in terms of environmental synchronization. For instance, vernacular architecture in South Sulawesi uses high marks on the aspects of low energy consumption, use of renewable energy, and renewable materials, but vernacular architecture in Java is in harmony with Nature (Idham, 2018). Indeed, vernacular architecture in South Sulawesi uses high scores on the aspect of low energy consumption, renewable energy and renewable materials (Satar et al., 2018).

Karampuang vernacular architecture in Sulawesi is based on the anatomy of the female body represented in the ornaments and symbols in the house (Hildayanti & Sahabuddin, 2023), as well as similar in West Sumba (Solikhah & Fatimah, 2020). In contrast, vernacular architecture of

Kampung Naga is a physical embodiment of local cultural beliefs, symbolizing cosmological concepts and religious philosophy (Riany et al., 2014). Bali uses the proportions of the human body and scale to establish the spatial dimensions and hierarchies of houses (Arini & Paramita, 2021). These are consistent with the assertion of Waterson (2012) that Indonesian vernacular architecture has a deeper and more significant meaning than only serving as a place to live; a house serves as a symbolic reflection of the cultural values that the community upholds.

Moreover, the house symbol is used vertically to symbolize the head, body, and feet, or the Triloka idea, as a representation of the human body. This idea was applied to Hindu-Buddhist temples in Indonesia during the classical period, which spanned the eighth and twelfth centuries AD, according to the archeological data. Because worshippers view the upper universe as their most sacred space, a building that is vertically divided into three portions reflects the archipelago community's understanding of the world, which separates Nature into three parts. Ancestors or gods reside in the higher universe (Svarloka), pure humans reside in the middle world (Bhuvraloka), and humans, lower forces, and animals reside in the bottom universe (Bhurloka) (Schefold, Nas & Domenig, 2004).

Most vernacular architecture has been adapted to the local environment as evidenced by the raised-piled foundation houses in Malay vernacular architecture in Sumatera, which adapt to the tropical climate (Zain et al., 2022), and the Kutai vernacular houses in Kalimantan, which protect against flood-prone conditions (Zakiah & Octavia, 2013). The raised structure is an almost universal and old method used in Southeast Asia, Micronesia, and Polynesia, as well as on the islands (Waterson, 1998).

One of the key features of Indonesian vernacular architecture is the variety of roof shapes. Nugroho & Hidayat (2016) argue that the roof typology in South Sumatera demonstrates the extent of ethnic mobilization. Waterson (2012) states that the roof form have evolved into a symbol that signifies the cultural identity of the Indonesian groups. A home serves as a multi-family residence because it is typical for Indonesians to live with both their immediate and extended families.

According to Hamidah et al.(2014), the fundamental spatial arrangement of the Betang houses in Kalimantan, Seram Island, and Karo vernacular dwellings reflects the familial pattern and togetherness. Numerous scholars have examined how space is transformed in Indonesian vernacular architecture, and they have determined that geographic, environmental, and cultural factors have an impact on these changes. For instance, Nugroho & Hidayat (2016) have discovered that these variables have an impact on the change of Ulu houses in South Sumatera, while Artiningrum & Sukmajati (2017) have observed that the physical characteristics of the water environment as well as the social and cultural factors have had an impact on the adaptation of Bugis fishermen's vernacular architecture in Sulawesi.

In vernacular architecture, the alteration of space is frequently an endeavor by the community to preserve traditional existence. However, as demonstrated by the adaptation of Kutai vernacular dwellings in Kalimantan, there are restrictions on substituting unique parts and the influence of lifestyle (Zakiah & Octavia, 2013). As demonstrated by the adaptation of Betang vernacular architecture in Central Kalimantan, these transformations are sometimes driven by the introduction of new cultural practices and the necessity to adjust to shifting circumstances (Hamidah et al., 2014).

Research on Indonesian vernacular architecture demonstrates how crucial it is to comprehend how space is transformed in these kinds of buildings. This knowledge is essential for maintaining and advancing the nation's rich architectural legacy and for modifying traditional forms and materials to fit the modern environments (Rumiawati & Prasetyo, 2013).

Research Methodology

This research employs qualitative research, which is a widely used method in architecture and design. Qualitative research is particularly useful for understanding human activities and their relationships with architecture, as it allows for a flexible and holistic approach to reveal real-life phenomena (Groat & Wang, 2013). In this study, the researcher used primary data collection techniques such as visual observations, comparative visual analysis, and observing the attitudes of the Javanese people towards vernacular buildings through direct experience. Secondary data was

collected by studying literature about vernacular architecture in Indonesia and Java to understand its characteristics and transformations.

Data collected was analyzed and interpreted using the theory of the production of space (Lefebvre, & Nicholson-Smith, 1991), a triad conception that includes spatial practice, representations of space, and representations of spatial practices. This theory was used to analyze the space transformation and attitude of society towards vernacular architecture in Java.

It also collects data through a Systematic Literature Survey and visual observations. The literature survey was carried out with the help of the *Publish or Perish* platform with the keywords “Indonesian vernacular architecture and/or vernacular architecture in Indonesia”, and continued with vernacular architecture from various regions, such as Java, Sumatra, Kalimantan, Sulawesi, Bali, Lombok, Sumba, Moluccas, and as representation of islands in Indonesia.

Findings and Discussion

Vernacular Architecture in Java: The Production of Space in the Hindu Mataram Kingdom Era

The discovery of the Java Man (*Pithecanthropus erectus*) fossil, which may be between 700,000 and 1,490,000 years old, by Eugene Dubois in 1891 shows that the island of Java has a long history and civilization. As the most populous island in Indonesia, the presence of vernacular architecture in Java has begun to be detected visually in the reliefs found on Hindu Buddhist temples from the Classical Era started in the 8th century AD.



Fig. 3: Inscription of Vernacular Architecture in Borobudur Temple, built in the 8th and 9th Centuries AD
Source: Number 65, Karmawibhanga Relief, Borobudur Temple (Krom, 1920)

Figure 3 shows one of the inscriptions on the wall of Borobudur Temple near Yogyakarta, which has been built in the 8th and 9th centuries AD during the Hindu Mataram Kingdom era. It depicts a rural atmosphere with a house on raised-piled foundation, where people are doing activities in the center of the building, while at the bottom under the building it functions as a cage or warehouse. This depiction also shows their livelihood farming with agricultural products such as rice and bananas. These reliefs confirm vernacular architecture in Java at that time, similar to an Austronesian archetype with a raised-piled foundation and a saddle roof (Tjahjono, 1998).

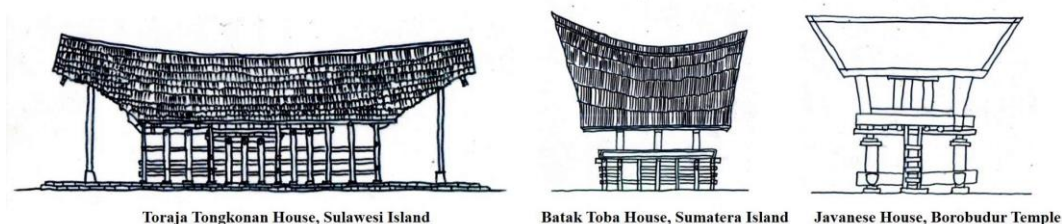


Fig.4: Similarities between Tongkonan Toraja, Toba Batak, and Javanese Vernacular Houses depicted on the reliefs of Borobudur Temple

Source: Author, 2024

The conditions depicted in the Borobudur temple reliefs are still relevant to vernacular architecture. For example, the Figure 8 shows the similarities of roofs between Batak Toba, Sumatra and Toraja and Sulawesi. This saddle-roof house represents a house like a ship, reminiscent of sailor ancestors. At this point, the production of vernacular houses can be argued to be the result of spatial practice, representation of space and representational space.

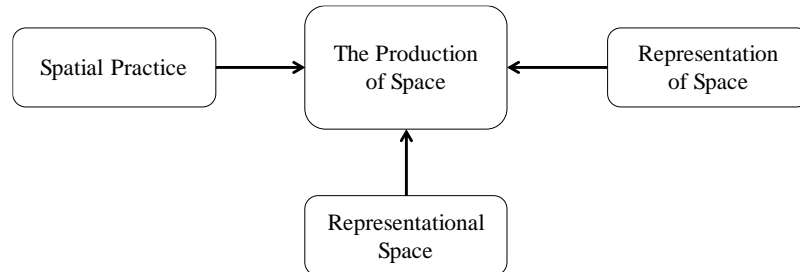


Fig. 9: Production of Vernacular Architecture in Java during the Hindu Mataram Kingdom Explained
Source: Author, 2024

Vernacular Architecture in Java: The Reproduction of Space in the Majapahit Kingdom Era

During the era of the Majapahit Kingdom in the 13th to 16th century, East Java, archaeological evidence shows that the architecture at that time had experienced a major transformation, such as the area under the floor getting smaller or even vanishing. The houses no longer had raised-piled foundations, and the saddle-back roof no longer existed. House architecture during the Majapahit era also began to recognize brick as the primary building material combined with wood and other organic materials (Sani & Kasdi, 2017).



Fig. 5: Majapahit Vernacular Architecture (a), Restored Majapahit House in Trowulan, East Java (b)
Source: Sasongko (2016)

Kurniawan et al. (2024) note that there are two possible transformations, especially the loss of the saddle roof. As a result of material constraints, the Austronesian gable roof requires large logs which have become increasingly rare. Secondly, there is a change in the symbolism of the house. What was previously a maritime culture (houses like ships) had become an inland agrarian culture. This shows that spatial practice and representation of space transforms the shape and layout of the vernacular house.

The influence of synchronization with the environment has also occurred in the transformations of the houses in the Majapahit Kingdom Era. The geographical conditions in Central Java during the Hindu Mataram Kingdom, which did not yet recognize the use of bricks but had abundant andesite rock resources, became very different from the geographical conditions in East Java. Bricks are widely used to build temples or sacred buildings and, in turn, are also used to build residential houses in combination with other organic materials, such as wood and clay roof

tiles, as seen in the Figure 5. We argue that there is a third factor, namely environmental factors, and the availability of materials, that has influenced the form and the spatial organization.

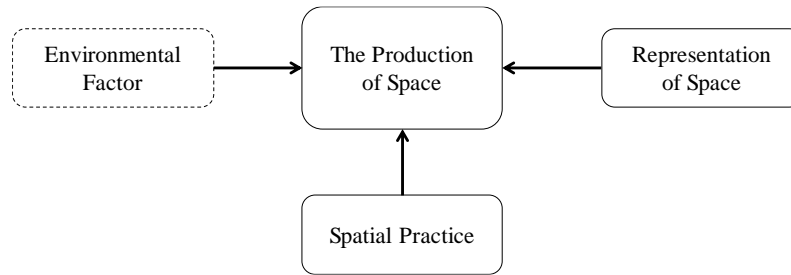


Fig.11: Reproduction of Vernacular Architecture in Java during the Majapahit Era Explained
Source: Author, 2024

Vernacular Architecture in Java: The Reproduction of Space in the Islamic Mataram Kingdom Era

In the era of the Islamic Mataram Kingdom, which later split into the Islamic Mataram Kingdom centered in Surakarta and Yogyakarta in the 18th century, people have perceived that vernacular architecture in Java no longer by building houses on raised-piled foundation. Instead, they were laid on the ground with the addition of a permanent floor without any underfloor as shown in the Figure 6. which shows an illustration and restoration of a house during the Majapahit Kingdom era.

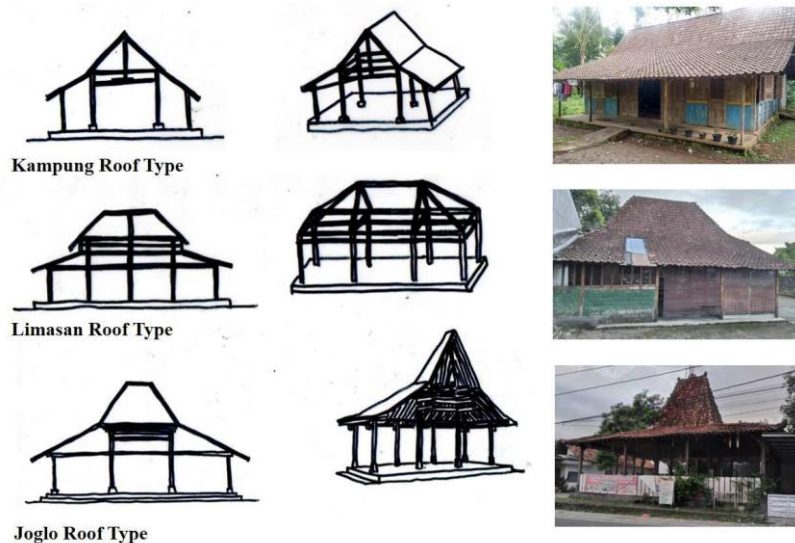


Fig. 6: The Roof Formation and Typology of Vernacular House Architecture in Java
Source: Rohman & Author, 2024

In this era, Javanese vernacular architecture had developed into several roof types that reflect the social status of the owner. The more elaborate the roof shape and spatial organization is, the higher the social status in the society. In this era, Mataram society has been divided into three groups: the King and his descendants, the Priyayi, the noble community (land owners), and the Kawula or the common people (Arimi, 2008). The existence of this social status can be seen from the shapes of the roofs of Javanese houses, which have differences: Kampung Roofs, Limasan Roofs, and Joglo Roofs.

They are as follows:

1. Type 1: The *Kampung* Roof

The *Kampung* Roof has the simplest structure; a pitched roof established over four central columns, braced by two layers of tie beams. The roof can be enlarged by extending it to meet the needs of the inhabitants. This type is considered a house for commoners.

2. Type 2: The *Limasan* (Hip Roof)

The *Limasan* Roof is a more elaborate version of the *Kampung* Roof form. It has the basic ground plan of four primary columns and some more extended columns at either gable end. This type is used for the house of the higher status Javanese families.

3. Type 3: The *Joglo* Roof

The *Joglo* Roof is the most elaborate type of Javanese house. It exhibits some distinctive features. The roof is much steeper, and the roof peak is significantly reduced. Four primary columns, referred to as *Saka Guru*, support the roof structure, which is surmounted by a unique structure in the interior, mostly completed with wooden ornaments referred to as the *Tumpang Sari*. This type is traditionally associated with the residences of aristocrats or high-ranking families (Idham, 2018).

Production of space in Javanese vernacular architecture is heavily influenced by the way of life of the people. Spatial organization has sacred and profane meanings driven by spatial practice, such as that a house is a place for public activities (social gatherings, ceremonies, and performances) represented by the *Pendapa* area. Meanwhile, the *Dalem*, as the main room of the owner's residence has a more sacred and representing symbolic meaning, which is a manifestation of the life of the Javanese people. We argue that spatial practice and representational space, which refers to the symbolism of space and how society represents it, are triggers for how space is reproduced.

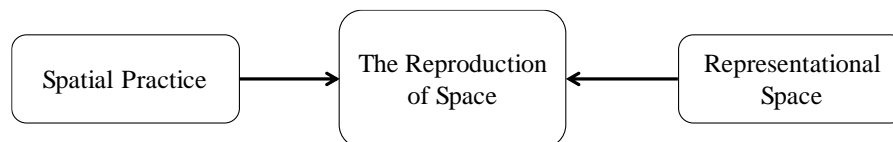


Fig.7: Reproduction of Vernacular Architecture in Java during the Islamic Mataram Kingdom Era
Source: Author, 2024

Vernacular Architecture in Java: The Reproduction of Space in the Contemporary Era

In the contemporary era, when modernism has entered all aspects of life, Javanese society has also transformed in such a way. The results of visual observations and direct experiences show several attitudes shown by the contemporary Javanese society towards vernacular architecture. People who live in vernacular buildings in Java tend to transform the building, spatial organization, and building materials. Several reasons may underlie it. Firstly, they want to be more modern, and follow a lifestyle according to their needs, and there is a common trend to be like people in the urban areas. This is presented through the media, especially television, which reaches remote rural areas in Java. Continuous media exposure, especially television, is considered to influence the mindset and the actions of the audience (Azwar et al., 2019). The houses depicted in serials watched on television are often known as 'sinetron houses' (electronic cinema in Indonesian acronym). To some extent, they influence people's desire to own and live in them. Apart from that, the government uses the criteria for houses made from organic materials such as bamboo and cheap wood, which are typical of vernacular village houses; as houses for underprivileged families who are entitled to Direct Cash Assistance (BLT). This gives a connotation to the community that vernacular houses are synonymous with poverty. Thus, most do not want to enter that group of society.

On the other hand, changes in social relations result from the fading of local culture. Javanese culture is closely related to feudalism, but now it is fading away and is being replaced by economic power in a more egalitarian society. Architectural forms represent social status. When social relations change, spatial reproduction occurs but with different manifestations. Houses with *Joglo* roof types, for example, which are symbols of the aristocratic society, nowadays are no longer only inhabited by aristocrats but also by rich people who can afford to build *Joglo* roof types, which are more expensive due to building materials, structural complexity, and more elaborate decorations.

Another thing that often occurs is the transfer of ownership due to inheritance. In general, vernacular houses in Yogyakarta and their surroundings have a larger area than the average modern house. Therefore, families tend to divide the inherited land into smaller plots according to the number of heirs. The consequence is that the structure of the house changes. For that reason, many original houses are traded because of the easy knock-down system for disassembling vernacular houses. An example is in Kotagede Yogyakarta, the former capital of the Islamic Mataram Kingdom. Many *Joglo* houses have been sold or split. They are occupied by more than one family as a result of the inheritance system being allowed to divide the vernacular buildings, which may already be heritage buildings that are supposed to be conserved as an entity. Inheritance is a problem for vernacular architecture in Kotagede because it can threaten the existence of buildings. After all, awareness of conservation is not yet evenly widespread (Dharmasanti & Dewi, 2020).

Another attitude that emerges in the contemporary era is continuing to maintain and restore vernacular buildings. The possible underlying reason is that people respect the existing local culture and continue to preserve it. Although, of course, adaptation to current needs is also carried out, the authentic atmosphere of vernacular architecture is still clearly visible. Vernacular architecture as a representation of social status and identity still survives in the society.



Fig. 8: The Revitalised Vernacular Architecture near Yogyakarta
Source: Instagram Dalem_moelyosudarmo, 2024

Moreover, people in urban areas are interested in possessing vernacular buildings for aesthetic and artistic reasons. Abundant vernacular architecture, especially in the rural areas, is dismantled and converted into commercial functions in urbanized areas. This trend occurs in coffee shops or restaurants serving traditional food. It is combined with the drinking coffee trend in Yogyakarta, its surroundings, and Indonesia in general. Possible reasons for consideration are that vernacular buildings have an authentic and aesthetic vibe that is expected to appear in a coffee shop. Vernacular buildings are usually made of organic buildings (wood and bamboo), utilize knock-down construction that can be disassembled and easily moved to another place. In addition, the material is more robust because it is made of good-quality old timber. However, on the other hand, it is cheaper than building new ones with new timber materials.



Fig. 9: Warung Wedangan Kampung near Yogyakarta
Source: Author, 2024

This phenomenon shows that space is a social product constantly produced and reproduced through people's activities (Lefebvre, & Nicholson-Smith, 1991). Vernacular architecture, which previously served as a dwelling, is reproduced with new functions according to social relations and economic processes that continue to develop dynamically. The shape of the roof of the house, which in the previous era had a cultural representation, may change if, in the past, the roof of the house represented the social status of the occupants. It is possible that in the future, the vernacular Java house will be a cultural representation of commercial activities such as a coffee shop or a restaurant. Meanwhile, the original place where vernacular architecture comes from may lose its sense of place.



Fig. 10: Design Studio Assignment inspired by Indonesian Vernacular Architecture at Universitas Islam Indonesia
Source: Author, 2024

The awareness of architects in Indonesia to appreciate vernacular architecture and use it as design inspiration has been going on for quite some time, since the early 20th century when Indonesia was still under the Dutch Colonial government. Many young Dutch architects practicing in Indonesia, such as Thomas Karsten and Henri McLain Pont had taken vernacular architecture as inspiration in their designs (Coté, 2014). During the contemporary era, architectural schools in Yogyakarta, such as Universitas Islam Indonesia, provide learning about Indonesian architecture and use it as design inspiration in their studio courses, as depicted in the Figure 16. Excursion studies are also encouraged with the hope that the appreciation of vernacular architecture will get stronger and become the country's identity in the present and future eras amid the strong current of globalization.

This paper argues that the process of reproduction of space in the contemporary era is influenced by spatial practice factors due to modernization, the stigma against vernacular architecture as the architecture of the poor and changes in representational space from vernacular architecture as a symbol of social status for the nobles to social status for the rich. Pragmatic factors such as the division of heritage and adaptation to vernacular buildings to create hybrid space, namely the building container, remain a vernacular building, but modern utilities and equipment have been added to be able to follow the lifestyle of today's era. The process of spatial reproduction also occurs due to the vernacular house as a cultural symbol but in a new function, especially commercial, through gentrification to new places and efforts to reproduce space as a result of educational factors promoted in the architectural education curriculum in Indonesia.

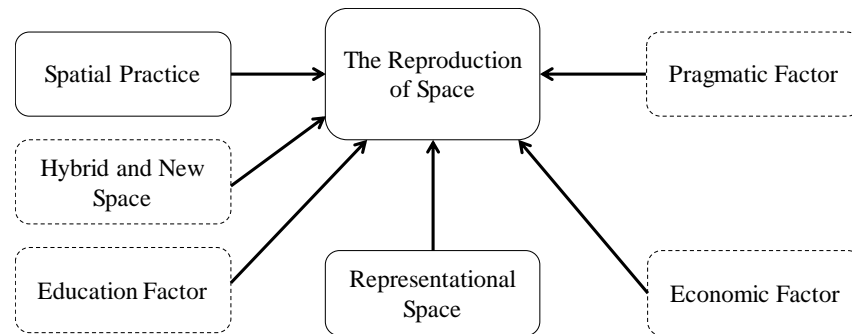


Fig.11: Reproduction of Vernacular Architecture in Java in the Contemporary Era Explained
Source: Author, 2024

Conclusion

This paper concludes the following.

1. During the Hindu Mataram Kingdom era, as depicted in the Borobudur Temple reliefs, vernacular architecture in Java has been characterized by raised-piled foundations and saddle roofs which had symbolic meanings from the maritime culture of the people. Production of vernacular house can be argued to be the result of spatial practice, representation of space, and representational space, as stated by Lefebvre & Nicholson-Smith (1991). In the era of the Majapahit kingdom, there has been a major transformation in Javanese architecture, demonstrated by the disappearance of raised-piled foundations and saddle-back roofs. Use of brick as primary building material had become common, and the influence of environmental factors on the form and spatial organization of houses have been noted, besides the spatial practice and representational space.
2. In the era of the Islamic Mataram Kingdom, vernacular architecture in Java has developed into several roof types that reflected the social status of the landlord. The more elaborate the roof shape and spatial organization has been, the higher the hierarchy in the society has become. The reproduction of space during this era has been heavily influenced by the way of life of the people, and the spatial practice and representational space are the triggers for how space is reproduced.
3. In the contemporary era, the influence of modernism has led to the transformation of vernacular architecture in Java. People are transforming buildings, spatial organizations, and building materials to be more modern to follow the urban trends. The government's criteria for classifying houses made from organic materials have given a negative connotation, which is often associated with poverty. On the other hand, the Joglo roof type, which used to be a type of roof for the homes of aristocrats, has become popular with those who are economically able to build and maintain it as a symbol of social status, even though they are not of aristocratic descent.

Therefore, this paper argues that the process of reproduction of space in the contemporary era is influenced by the following.

1. Spatial practice, changes in representational space from vernacular architecture as a symbol of social status for the nobles to the rich,
2. Pragmatic factors such as the division of heritage and adaptation to vernacular buildings to create hybrid space
3. Vernacular house as a cultural symbol but in a new function, and educational factors promoted in architectural education.

It can be thus concluded that the process of production and reproduction of space in vernacular architecture in Java continues to evolve according to the times. The three conceptions in the Production of Space theory developed by Lefebvre, & Nicholson-Smith (1991): spatial practice (what is experienced), representation of space (what is perceived), and representational space (what is thought) are relevant to be used in analyzing vernacular architecture. However, it turns out that these three conceptions are insufficient. This research reveals that other factors also influence the process of production and reproduction of space: environmental factors, economic factors, pragmatic factors, hybrid and new spaces, and educational factors.

This research presents a historical analysis and the evolution process of vernacular architecture in Java over time. However, it does not offer quantitative data and the scope is limited to Java. Undeniably, vernacular architecture in Indonesia has a diversity that needs to be deepened in the evolution of production and reproduction of space. In the future, it is necessary to consider reviewing conservation efforts to preserve vernacular architecture in Java.

References

- Arimi, S. (2008) Pergeseran Kekuasaan Bangsawan Jawa Indonesia: Sebuah Analisis Wacana Kritis. *Jurnal Masyarakat & Budaya*, 10(2), 1–22. Available at: <https://doi.org/https://doi.org/10.14203/jmb.v10i2.214>
- Arini, I. A. D. & Paramita, I. B. G. (2021) Seni Arsitektur Bali dalam Bangunan Bangunan Bali (Kajian Filosofis). *Maha Widya Duta*, 5(1), 76–87.
- Artiningrum, P., & Sukmajati, D. (2017) Adaptasi Arsitektur Vernakular Kampung Nelayan Bugis Di Kamal Muara. *NALARs*, 16(1), 69. Available at: <https://doi.org/10.24853/nalars.16.1.69-84>
- Azwar, Dharma Shanti, H. & Arumdhani, K. (2019) Dampak Sinetron Indonesia Terhadap Perilaku Masyarakat (Analisis Kasus: Sinetron Anak Langit Di Sctv). *Journal of Digital Education, Communication, and Arts*, 2(2), 89–98.
- Brenner, N. & Elden, S. (2009) Henri Lefebvre on State, Space, Territory. *International Political Sociology*, 3(4), 353–377. Available at: <https://doi.org/10.1111/j.1749-5687.2009.00081.x>
- Cahyani, A. & Kusdarini, E. (2021) Raising Islamic Values Tradition On the Reading of Anbiya Book. *Masyarakat, Kebudayaan Dan Politik*, 34(3), 317. Available at: <https://doi.org/10.20473/mkp.v34i32021.317-328>
- Coté, J. (2014) Thomas Karsten's Indonesia: Modernity and the End of Europe, 1914–1945. *Bijdragen Tot de Taal-, Land-En Volkenkunde/Journal of the Humanities and Social Sciences of Southeast Asia*, 170(1), 66–98.
- Davison, J. (1998) The House as a Ritually Ordered Space, *Indonesia Heritage Architecture* pp. 18–20.
- Dharmasanti, R. & Dewi, S. P. (2020) The Awareness Level of Building Owners to Conserve Cultural Heritage Area in Kotagede, Yogyakarta. *IOP Conference Series: Earth and Environmental Science*, 409(1). Available at: <https://doi.org/10.1088/1755-1315/409/1/012025>
- Fearon, J. (2003) Ethnic and Cultural Diversity by Country. *Journal of Economic Growth*, 8, 195–222. Available at: <https://doi.org/10.1023/A:1024419522867>
- Fiorentino, V., Romakkaniemi, M., Harrikari, T., Saraniemi, S. & Tiitinen, L. (2023) Towards Digitally Mediated Social Work – The Impact of the COVID-19 Pandemic on Encountering Clients in Social Work. *Qualitative Social Work*, 22(3), 448–464. Available at: <https://doi.org/10.1177/14733250221075603>

- Fuchs, C. (2019) Henri Lefebvre's Theory of the Production of Space and the Critical Theory of Communication. *Communication Theory*, 29(2), pp.129–150.
- Groat, L. N., & Wang, D. (2013). *Architectural Research Methods*. John Wiley & Sons.
- Hamidah, N., Tatau, D. & Garib, W. (2014) Studi Arsitektur Rumah Betang Kalimantan Tengah. *Jurnal Arsitektur Melayu Dan Lingkungan*, 1(2), pp.19–35.
- Handayani, T. (2020). Pelestarian Arsitektur Museum Sonobudoyo Yogyakarta. *ATRIUM Jurnal Arsitektur*, 3(1), pp.45–58. Available at: <https://doi.org/10.21460/atrium.v3i1.65>
- Hildayanti, A., & Sahabuddin, W. (2023). Tectonics of the Vernacular: The Design Techniques of the Tongkonan House, South Sulawesi, Indonesia. *ISVS e-Journal*, 10(3), pp.1–11.
- Idham, N. C. (2018). Javanese Vernacular Architecture and Environmental Synchronization Based on the Regional Diversity of Joglo and Limasan. *Frontiers of Architectural Research*, 7(3), 317–333. Available at: <https://doi.org/https://doi.org/10.1016/j.foar.2018.06.006>
- Karafet, T. M., Hallmark, B., Cox, M. P., Sudoyo, H., Downey, S., Lansing, J. S. & Hammer, M. F. (2010) Major East-West Division Underlies Y Chromosome Stratification Across Indonesia. *Molecular Biology and Evolution*, 27(8), 1833–1844. Available at: <https://doi.org/10.1093/molbev/msq063>
- Krom, N. J. (1920) *Beschrijving van Borobudur.I: Archaeologische Beschrijving*. Martinus Nijhof.
- Kurniawan, K. R., Perdana, A. B. & Widiastuti, I. (2024). The Loss of Austronesian Saddle Roof in the Vernacular Architecture of Java, Indonesia. *ISVS e-Journal*, 11(02), pp. 582–602. Available at: <https://doi.org/https://doi.org/10.61275/ISVSej-2024-11-02-36>
- Kusuma, P., Cox, M. P., Pierron, D., Razafindrazaka, H., Brucato, N., Tonasso, L., Suryadi, H. L., Letellier, T., Sudoyo, H. & Ricaut, F. X. (2015) Mitochondrial DNA and the Y chromosome suggest the settlement of Madagascar by Indonesian sea nomad populations. *BMC Genomics*, 16(1), pp.10–13. Available at: <https://doi.org/10.1186/s12864-015-1394-7>
- Lefebvre, H. & Nicholson-Smith, D. (1991) *The production of space*. Blackwell: Oxford.
- Manurung, P. & Diananta. (2021) The Concept of In-between Space in Batak Toba Vernacular Architecture: A Content Analysis Study. *ARTEKS : Jurnal Teknik Arsitektur*, 6(1), pp.55–66. Available at: <https://doi.org/10.30822/arteks.v6i1.584>
- Natri, H. M., Bobowik, K. S., Kusuma, P., Darusallam, C. C., Jacobs, G. S., Hudjashov, G., Stephen Lansing, J., Sudoyo, H., Banovich, N. E., Cox, M. P. & Romero, I. G. (2020) Genome-wide DNA Methylation and Gene Expression Patterns Reflect Genetic Ancestry and Environmental Differences across the Indonesian Archipelago. *PLoS Genetics*, 16(5), pp.1–21. Available at: <https://doi.org/10.1371/journal.pgen.1008749>
- Newlands, G. (2021) Algorithmic Surveillance in the Gig Economy: The Organization of Work through Lefebvrian Conceived Space. *Organization Studies*, 42(5), pp.719–737. Available at: <https://doi.org/10.1177/0170840620937900>
- Nugroho, S. & Hidayat, H. (2016) Tipologi Arsitektur Rumah Ulu di Sumatera Selatan. *Temu Ilmiah IPLBI 2016*, pp.145–150.
- Oliver, P (1997). *Encyclopedia of Vernacular Architecture of the World*. Cambridge University Press.
- Parlindungan, F., Rifai, I. & Safriani, A. (2018) The Representation of Indonesian Cultural Diversity in Middle School English Textbooks. *Indonesian Journal of Applied Linguistics*, 8(2), pp.289–302. Available at: <https://doi.org/10.17509/ijal.v8i2.13276>
- Purcell, M. (2022) Theorising Democratic Space with and beyond Henri Lefebvre. *Urban Studies*, 59(15), pp.3041–3059. <https://doi.org/10.1177/00420980211067915>
- Rahim, M., Ibrahim, M. & Marasabessy, F. (2021) Construction System and Environment Adaptation of Traditional Architecture in Moluccas Island. *Civil Engineering and Architecture*, 9(5), pp.1530–1545. Available at: <https://doi.org/10.13189/CEA.2021.090524>
- Rapoport, A. (1969) *House Form and Culture*. USA: Engelwood Cliffs.
- Riany, M., Rachmadi, Y., Sambira, I. Y., Muharam, A. T. & Taufik, R. M. (2014) Kajian Aspek Kosmologi-Symbolisme pada Arsitektur Rumah Tinggal Vernakular di Kampung Naga. *Jurnal Reka Karsa*, 2(4), pp.1–12.
- Rudofsky, B. (1987). *Architecture Without Architects: A Short Introduction to Non-pedigreed Architecture*. UNM Press.

- Rumiawati, A. & Prasetyo, Y. H. (2013) Identifikasi Tipologi Arsitektur Rumah Tradisional Melayu di Kabupaten Langkat dan Perubahanannya. *Jurnal Permukiman*, 8(2), 78. Available at: <https://doi.org/10.31815/jp.2013.8.78-88>
- Sani, R. A. & Kasdi, A. (2017) Arsitektur Rumah di Kawasan Cagar Budaya Trowulan (Studi Pemukiman Majapahit Abad ke-14 M). *AVATARA*, 5(3), pp.965–980.
- Sasongko, A. (2016, January). Rumah Majapahit, Bentuk Restorasi Kekayaan Kultural. *Republika Online*. <https://news.republika.co.id/berita/o0je7i313/rumah-majapahit-bentuk-restorasi-kekayaan-kultural#commentSection>
- Satar, A., Syarif, E. & Nadjmi, N. (2018) *Arsitektur Vernakular di Sulawesi Selatan dan Perannya terhadap Arsitektur Hijau*. December 2018, A025–A033. Available at: <https://doi.org/10.32315/sem.3.b025>
- Saumantri, T. (2022) The Dialectic of Islam Nusantara and Its Contribution To The Development of Religious Moderation In Indonesia. *FOKUS Jurnal Kajian Keislaman Dan Kemasyarakatan*, 7(1), pp.57. Available at: <https://doi.org/10.29240/jf.v7i1.4295>
- Schefold, R., Nas, P. & Domenig, G. (2004) *Indonesian Houses: Tradition and Transformation in Vernacular Architecture (Vol. 1)*. NUS Press.
- Sholihah, A. B. & Endika, M. (2017) the Identification of Kutai Kartanegara Traditional Architecture Identity Based on Comparative Analysis. *Journal of Architectural Research and Design Studies*, 1(1), 23–33. Available at: <https://doi.org/10.20885/jars.vol1.iss1.art3>
- Soejono, R. (1998) Austronesian-Indonesian Connections. In *Indonesia Heritage Architecture*. pp. 10–12.
- Solikhah, N. & Fatimah, T. (2020) Lessons Learned from Vernacular Architecture Toward Sustainable Human Settlements: Insights from Praigoli Village, West Sumba, Indonesia. *ISVS e-Journal*, 7(4), pp.37–52.
- Sukada, B. (1998) The Emergence of a New Indies Style. In G. Tjahjono (Ed.), *Indonesia Heritage Architecture*. pp. 120–121. Archipelago Press.
- Susanto, D., Ningsih, T. A. & Angelia, D. (2018) Discovering the Potential of Organic Material in Architecture. *E3S Web of Conferences*, 67, pp.1–7. Available at: <https://doi.org/10.1051/e3sconf/20186704022>
- Taylor, S. & Spicer, A. (2007) Time for Space: A Narrative Review of Research on Organizational Spaces. *International Journal of Management Reviews*, 9(4), pp.325–346. Available at: <https://doi.org/10.1111/j.1468-2370.2007.00214.x>
- Tjahjono, G. (1998) The Javanese House. In *Indonesia Heritage: Architecture*. Archipelago Press.
- Tumonggor, M. K., Karafet, T. M., Hallmark, B., Lansing, J. S., Sudoyo, H., Hammer, M. F. & Cox, M. P. (2013) The Indonesian Archipelago: An Ancient Genetic Highway Linking Asia and the Pacific. *Journal of Human Genetics*, 58(3), pp.165–173. Available at: <https://doi.org/10.1038/jhg.2012.154>
- Vellinga, M. (2013) The Noble Vernacular. *Journal of Architecture*, 18(4), pp.570–590. Available at: <https://doi.org/10.1080/13602365.2013.819813>
- Waterson, R. (1998) The Toraja Tongkonan. In *Indonesia Heritage: Architecture*. Archipelago Press.
- Waterson, R. (2012) *Living House: An Anthropology of Architecture in South-East Asia*. Tuttle publishing.
- Wijaya, S. (2019) Indonesian Food Culture Mapping: A Starter Contribution to Promote Indonesian Culinary Tourism. *Journal of Ethnic Foods*, 6(1), pp.1–10. Available at: <https://doi.org/10.1186/s42779-019-0009-3>
- Zain, Z., Aqsa, A., Sunandi Jurusan Arsitektur Fakultas Teknik, R., Tanjungpura Pontianak Jalan Hadari Nawawi, U. H., Laut, B., Pontianak Tenggara, K. & Barat, K. (2022) *The Settlement Culture of The Malays in Pontianak City Towards The Utilization of Houses on The The Kapuas Riverside: A Study Of Settlement Area in Tambelan Sampit District*. 6, pp.1–14.
- Zakiah, H. & Octavia, H. C. (2013) Studi Adaptasi Rumah Vernakular Kutai Terhadap Lingkungan Rawan Banjir Di Tenggarong. *DIMENSI (Journal of Architecture and Built Environment)*, 40(2), pp.89–97. Available at: <https://doi.org/10.9744/dimensi.40.2.89-98>
- Zamolyi, F. (2022) Change of Shape, Size and Form Related to Traditional and New Materials in Atoni Buildings in Central Timor. *International Journal of Environment, Architecture, and Societies*, 2(01), pp.27–42. Available at: <https://doi.org/10.26418/ijeas.2022.2.01.27-42>