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Exploring Indonesia's Vernacular Architecture: Comparison of Environment and Culture Responsiveness

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ABSTRACT

Culture, region, and climate are three fundamental aspects that influence vernacular architecture. As the largest archipelagic country in the world, Indonesia is rich in diversity of vernacular architecture, originating from different cultural backgrounds and natural characteristics. It is interesting to examine whether significant similarities or differences are reflected in two vernacular houses formed from other cultures, regions, and topographies, even though they have the same function: residence. In this research, architectural comparisons were made between Sundanese traditional houses with the natural character of the mountains in West Java and Banjar traditional houses in the coastal region of South Kalimantan. Data was obtained through the literature review and then analyzed using Bentley's theory of three aspects — functional-constructional, environmental, and socio-cultural; as well as seven criteria — permeability, variety, readability, robustness, visual suitability, richness, and personalization. The research results show that the differences between these two vernacular architectures are visible from the use of materials and the type of foundation used. Apart from that, an interesting fact was discovered that even though both of them have different cultures and regions, the shape of the roof, the position of openings such as windows and doors, and the location of the buildings in the same housing complex, these two vernacular architectures have similarities. It is analyzed that this is the response of both communities that is reflected in each of their vernacular architecture to the environment in the same climate, namely the tropical climate.

Keywords: Imah Panggung, Lanting House, Sundanese Tribe, Banjar Tribe, Vernacular Architecture Comparison

ABSTRAK

Budaya, region, dan iklim merupakan tiga aspek fundamental yang mempengaruhi bentuk arsitektur vernakular. Sebagai negara kepulauan terbesar di dunia, Indonesia kaya akan keragaman arsitektur vernakular yang berasal dari latar belakang budaya dan karakter alam yang berbeda. Adalah hal yang menarik untuk diteliti apakah terdapat persamaan maupun perbedaan signifikan yang tercermin dalam dua rumah vernakular yang terbentuk dari budaya, region, dan topografi yang berbeda, meskipun dengan fungsi yang sama yaitu tempat tinggal. Dalam penelitian kali ini, dilakukan komparasi arsitektur antar rumah adat Sunda dengan karakter alam pegunungan di Jawa Barat, dengan rumah adat Banjar yang berada di wilayah pesisir Kalimantan Selatan. Data diperoleh melalui literasi kepustakaan untuk kemudian dianalisis dengan menggunakan teori Bentley tiga aspek — fungsional-konstruksional, lingkungan, dan sosial-budaya; serta tujuh kriteria — permeabilitas, variasi, keterbacaan, kekokohan, kesesuaian visual, kekayaan, dan personalisasi. Hasil penelitian menunjukan bahwa perbedaan dua arsitektur vernakular ini jelas terlihat dari penggunaan material dan jenis pondasi yang digunakan. Selain itu ditemukan fakta menarik bahwa, meski memiliki budaya yang berbeda dan region yang bertolak belakang, bentuk atap, posisi bukaan seperti jendela dan pintu, serta letak bangunan dalam satu perumahan, kedua arsitektur vernakular ini memiliki kesamaan. Hal ini dianalisis sebagai respon

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kedua komunitas yang tercermin pada masing-masing arsitektur vernakularnya terhadap lingkungan di iklim yang sama, yaitu iklim tropis.
Keyword: Imah Panggung, Lanting House, Suku Sunda, Suku Banjar, Komparasi Arsitektur Vernakular

1. Introduction

Shelter is a basic need that humans have developed in simple forms since the beginning of civilization. Human cognitive development and the evolution of needs underlie the development of architecture in building the built environment (Rapoport, 2019). Vernacular architecture grows as part of the transformation of buildings that adapt their forms to cultural values, the environment, and the need for space. In architectural science, vernacular architecture is a typology of compositions, styles, and arrangements that emerge in an area and community group. The forms that develop in vernacular architecture result from a community's interpretation of its traditions, location, and history (Matar et al., 2023). Vernacular architecture is also interpreted as a contextual design response to local problems based on geographical and cultural aspects of the environment. The building typology formed as the result of local understanding of construction technology, material availability, and the ability of their communities to develop their dwellings (Rapoport, 2019).

Based on many aspects that need to be considered in analyzing vernacular architecture, three fundamental elements are deemed capable of meeting the needs of analysis: culture, climate, and region (Vellinga, 2011). Culture and architecture are so closely related that they cannot be separated. Culture is a form of communication in architecture that provides two types of information: how a society thinks about building shelters and how to differentiate shelters between communities. Culture will show how it develops and impacts vernacular architecture in an area. The locality of a vernacular building has implications for the embodiment of local identity, technology and crafts, collective memory, and traditional knowledge that develop continuously (Matar et al., 2023). Cultural development is closely related to region and climate. Physical conditions often influence the psychological conditions and behavior of a community. From the perspective of vernacular architecture, the influence of regional location and climatic conditions is visible in the choice of building materials. In some places, such as in Dalarna, Sweden, it is a separate culture to collect building materials, where residents will go and return together to gather straw for roofs (Vellinga, 2011). Local knowledge, the growth of cultural values, and the natural context of the environment are considerations in the development of responsive vernacular architecture.

Vernacular architecture embodies aspects of responsiveness to environmental adjustments that develop continuously over generations of society. The responsive element is the result of a combination of the contemporary appearance of the building and human creativity to increase the architecture's potential in developing spatial patterns rich in new experiences. Variations translated into vernacular architecture can be interpretations of symbols and values that emerge from religion, culture, and traditions in people's daily lives (Erarslan, 2020; Gharavi Alkhansari, 2015). Architecture itself is a response to adapting the living environment to human needs. Along with its use, adjustments, and changes emerge in responding to individual and societal problems. The responsive aspect is a process of adaptation to the natural conditions and climate of the surrounding environment (Bahramifar et al., 2022). The responsive patterns that appear in vernacular architecture are part of a passive design strategy that adapts the composition of the building and its spatial layout to the surrounding natural conditions. This is a differentiator that creates vernacular architectural characteristics that are unique to an area (Joseph et al., 2020).

Indonesia, the largest archipelagic country in the world, has hundreds of cultures spread throughout the country. Not only cultural diversity, but various regions in Indonesia also have a variety of geographic characteristics that create regions with different macroclimates. Regional and cultural differences that develop in a region make Indonesia a country rich in a variety of different vernacular architecture (Veronica et al., 2024). Vernacular architecture is influenced by three fundamental aspects: culture, region, and climate. This is based on the fact that the design of vernacular architecture will always adapt to the surrounding local climate, use traditional techniques and local materials, and is strongly influenced by aspects of the social, cultural, and economic environment (Rajendra, 2021). Regional differences based on geographical character in Indonesia will form community groups with different characters. People who live in relatively similar natural conditions

form groups that have their own culture, race, society, and language. Even though they are divided into various groups, there is a common thread of the archipelago that is reflected in the togetherness of the Indonesian people. It is normal if there are similarities in cultural values or physical features in different societies and ethnic groups (Saragi, 2021).

The similarities and differences that arise from culture and regions in Indonesia influence the formation of vernacular architecture that grows in each traditional community. Being in the same tropical climate makes studying how Indonesian vernacular architecture responds to different regions and cultures interesting to explore in research (Veronica & Aulia, 2024). Although there has been a lot of research related to vernacular architectural forms from various regions in Indonesia including a typology of vernacular architecture based on the area's physical condition (Annisa et al., 2020), the response of vernacular architecture on the side of rivers (Afdholy et al., 2024), and the stilts building respond in the vernacular architecture (Yanti et al., 2024). Yet, no one has compared two traditional buildings located in two very different regions to identify similarities and differences in response to the surrounding environment.

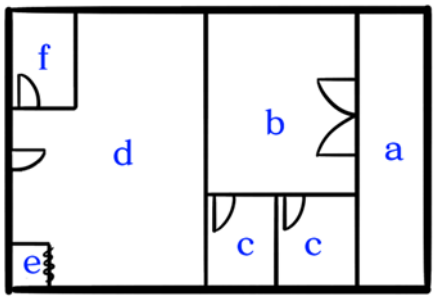
To fulfill research objectives, this research conducted a comparative study of three responsive elements of vernacular architecture — functional-constructional, environmental, and socio-cultural — with seven indicators — permeability, variety, legibility, robustness, visual appropriateness, richness, and personalization in the case study of Lanting Houses and Imah Panggung. The reason for choosing these two vernacular architecture was Lanting House represents vernacular architecture in the coastal region, and the Imah Panggung represents vernacular architecture in the highland region. This research aims to find differences and similarities in Indonesian vernacular architecture's responsive efforts in different regions and cultures. Through this research, it will be discovered how the Indonesian perspective is manifested in the same responsive patterns of vernacular architecture even though they have different backgrounds. It is hoped that this paper will be able to contribute to a deep understanding of vernacular architecture in Indonesia which is formed from fundamental factors: climate, region, and culture.

1.1 Imah Panggung Architecture, Sundanese Tribe

Sundanese people believe that balancing every element of life is fundamental to building a system in the universe. Residential buildings that are realized on Imah Panggung are a unity of ecosystems and social systems that are interconnected with each other. According to the Sundanese people's view, every creature on earth has its place and position (Nuryanto, 2021). Geographically, the Sundanese residential area is in the highlands, but rivers around the area make it prone to flooding. The overflow of river water which may occur during the rainy season, is the basis for people to build houses in the form of houses on stilts. The form of the stage is not only realized from the building based on its technical function but also as part of society's symbolic attitude towards the role of the house in life (Nuryanto et al., 2020).

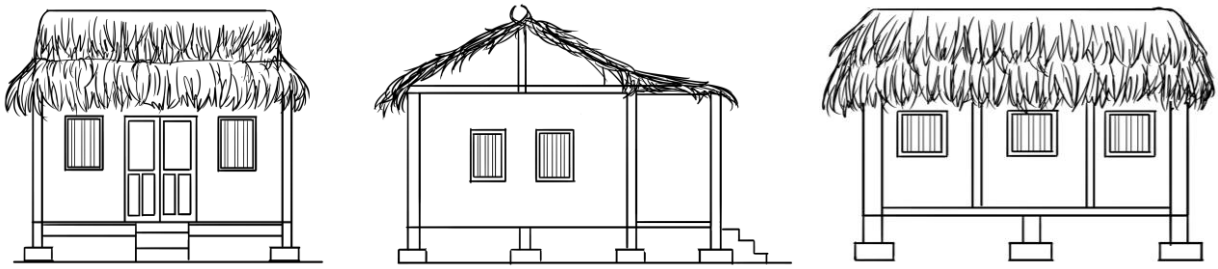
The Imah Panggung building is divided into three parts based on the cosmological perspective of the Sundanese people, namely the lower part (*Buana Larang*), the middle part (*Buana Panca Tengah*), and the upper part (*Buana Nyungcung*). The middle part, which is the main room for family activities, symbolizes a place that functions as a living, worldly, and human realm(Nuryanto, 2021). Based on the use of space, the middle of Imah Panggung is also the perfect place as the main activity space for the family because it is not protected from the threat of flooding, which can occur at any time. Figure 1 shows how the middle part of Imah Panggung functions as a space for cooking, working, and resting for family members (Nuryanto et al., 2020).

The shape of the Imah Panggung, which is relatively similar to each other, is influenced by the existence of traditional rules shared by the community (figure 2). The mystical things that the Sundanese people share are manifested in the rules implemented in the construction techniques that are applied to the construction of each house. The building tectonics applied to the construction of Imah Panggung cannot be changed in terms of size or type of material. It is believed that changes to the construction of the Imah Panggung building will change the natural order, which will affect its balance (Nuryanto et al., 2021). The four aspects contained in Imah Panggung are (1) the function of space as a gathering place; (2) an authentic cultural symbol that is timeless; (3) the physical representation of humans' relationships with their spiritual beliefs; and (4) community compliance with the consistency of a way of life-based on the tradition into an inseparable unity (Ali et al., 2022).



a. Tepas
b. Living room
c. Bedroom
d. Kitchen
e. Pangdaringan
f. Bathroom

Figure1. Imah Panggung Floor Plan
Source: Author Illustration



a. Front view b. Side view c. Back view

Figure 2. Imah Panggung Elevation
Source: Author Illustration

Figure 3.Imah Panggung (Stilt House)
Source: https://www.harapanrakyat.com/2023/02/ciri-khas-rumah-adat-sunda-yang-unik-dan-penuh-filosofi/

1.2 Lanting House Architecture, Banjar Tribe

Kalimantan has a unique geographical character; long rivers can be easily found in various regions. Lanting Houses is a form of community response in building homes by looking at the potential and surrounding conditions. People use wooden structures to build floating houses as containers for daily activities (Ardianti et al., 2021). Rivers are a source of life and orientation for people on the island of Kalimantan. The presence of rivers becomes a means for people to settle by adapting to patterns of adaptation and community interaction that shape communal behavior. Natural conditions in the form of river flows produce a pattern of community activity that settles and trades on the water. Lanting House is here to answer the need for space for people in the Kalimantan region who need floating housing (Putro & Zain, 2021b).

The presence of the Lanting House for the community is interpreted as a means of liaison between them as users and the surrounding environment. In general, these floating houses are located close to market locations. Lanting House is not only a community residence but also plays a commercial function. The living room is commonly used as the place of their commercial activity, which will be modified as the bedroom at night (Figure 3). Commercial activities carried out by the community include providing necessities, fuel, speedboat

workshops, and even serving as a package delivery post (Wicaksono & Saptorini, 2023). People use wooden structures to build floating houses as containers for daily activities. The structure and materials of Lanting House are chosen to support the floating construction (Ardianti et al., 2021).

The Lanting House has a relatively simple shape with a square building shape and a gable roof (Figure 4). What makes this house unique is its location, which is not above ground level but above river water. The foundation of a Lanting House does not generally use a foundation, but the house is built on piles of wood that support the house's buoyancy (Ardianti et al., 2021). From an exterior point of view, the Lanting dwellings in an area have the same shape, but in terms of interior, the Lanting House buildings have differences adapted to their function. Lanting Houses used as food stalls have a more complex interior shape than Lanting Houses, which also function as speedboat workshops (Putro & Zain, 2021a; Wicaksono & Saptorini, 2023).

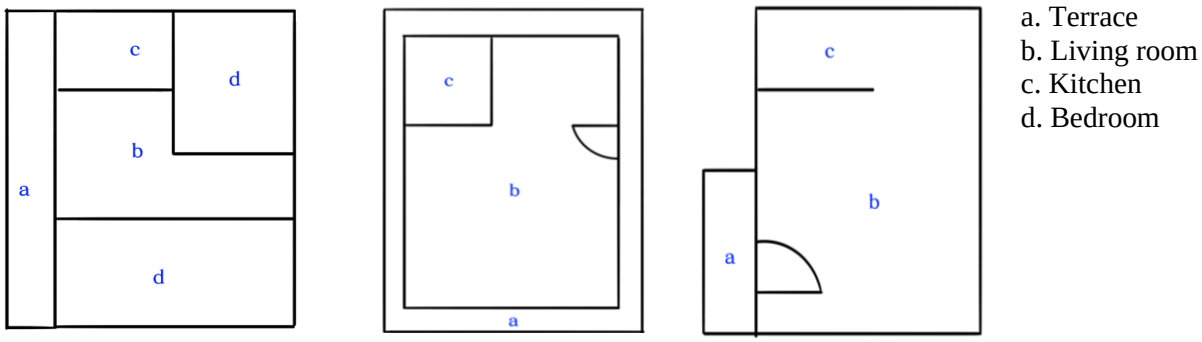


Figure 4. The diverse layout of the *Lanting* House Floor Plan
Source: Author Illustration

a. Front view b. Side view c. Back view

Figure 5. *Lanting* House Elevation
Source: Author Illustration

Figure 6. *Lanting* House Elevation
Source: https://koransulindo.com/arsitektur-rumah-lanting-rumah-terapung-suku-banjar/

2. Method

The built environment is shaped result of human interaction with the surrounding social and natural environment. A qualitative analysis is carried out on the shape of the building and its function to analyze the response of a building to the environment and culture that shapes it (Ali et al., 2022). The object of study in this research is a vernacular building built on two different geographical characteristics. The objects of study in this research are Lanting House and Imah Panggung. Geographically, the locations of Lanting Houses and Imah Panggung are very different; where Lanting Houses are in the lowlands, with the typology of the area being a river, while Imah Panggung is in the highlands. The social character of the two types of vernacular architecture is also very different, where the Lanting House is part of the Banjar community, and the Imah Panggung is part of the Sundanese community. To support this research, data related to the Lanting House and Imah Panggung were used, which came from secondary data sources through journals related to these two vernacular architectural buildings (Sargazi & Tahbaz, 2022). This research applies an analytical comparative study approach in looking at the differences in phenomena that appear in two different vernacular architectures (Nazari Moayed & Olgaç Türker, 2021). The analysis was carried out on three main aspects, namely functional-constructional, environmental, and social-cultural properties, with seven indicators on building responsive criteria: permeability, variety, legibility, robustness, visual appropriateness, richness, and personalization, which is in line with Bentley's theory, illustrated in the figure 5 below (Gharavi Alkhansari, 2015).

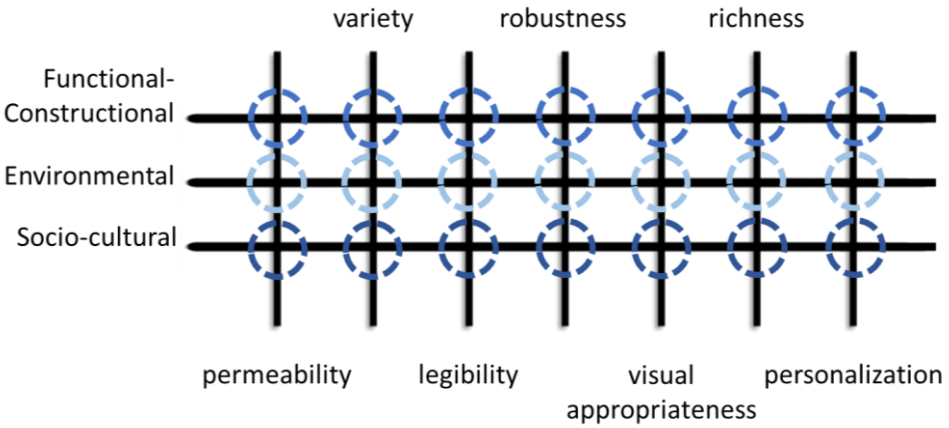


Figure 5. The research structure is based on Bentley's Theory
Source: (Gharavi Alkhansari, 2015)

By using the theory of 3 aspects and 7 indicators above, the two vernacular architectures, namely the Lanting house and the imah panggung, will be analyzed one by one and then compared to find the similarities and differences between each house. Analysis was carried out on the shape of the building, building materials, openings such as doors and windows, the layout of each house, and the position of the house in the housing complex, from a perspective that is by Bentley's theory explained above. In the functional-constructional aspect, the analysis focuses on the function and construction of the elements that make up the house; while in the environmental aspect, the analysis focuses on how the house responds to the needs of residents from two different regions; and from the socio-cultural aspect, the analysis focuses on how the culture of each tribe has rules regarding shape, position, and who can use a certain room or area in the house.

In this research, analysis was carried out after data was obtained based on secondary data sources through journals related to these two vernacular architectural buildings. The results of the analysis of 3 aspects and 7 indicators from each building were then compared and then compared so that similarities and differences were found.

3. Discussion

To explore Indonesian vernacular architecture represented by the stage house from the Sundanese community and the Lanting House from the Banjar community, the analysis was carried out using Bentley's theory, which divides the analysis aspects into functional-constructional, environmental, and socio-cultural. These three aspects were then studied using seven criteria: permeability, variety, legibility, robustness, visual appropriateness, richness, and personalization. The following is a detailed explanation regarding the analysis

of the two buildings that have been determined.

3.1 Functional-Constructional

It is impossible to ignore some features of the building's design and operation in any study of vernacular architecture. Likewise, in Bentley's theory, the functional-constructional aspect is studied using seven criteria: permeability, variety, legibility, robustness, visual appropriateness, richness, and personalization. From the construction of the house facade, it is clear that Imah Panggung and Rumah Lanting have areas that function to invite entry to anyone who wants to visit (Figure 1.a and Figure 3. a). In Lanting Houses, the facade of the house or shophouse has a terrace connected to the land and a facade design that attracts the attention of visitors. In Imah Panggung, the front of the house is given additional construction, right, which is a sitting area where the owner of the house usually spends the morning there, greeting and inviting neighbors to stop by. Not all vernacular buildings in an area have to have the same shape and internal spatial pattern.

Not only the facade but these two houses also have construction for the foundation that adapts to natural contours. The construction aspect of vernacular buildings generally summarizes the connection with the environment so that the principle of poverty is established in the development and utilization process (Matar et al., 2023). If a Lanting House uses logs made into a kind of raft as a foundation (Figure 4), then an Imah Panggung uses stilt construction (Figure 2). From a functional perspective, there is a reason why it was built that way. The raft on the Lanting House will allow the house to follow the ebb and flow of the river water, while the height of the stilt at the Imah Panggung can be adjusted, considering that the contour of the land in the mountains is often uneven. These functions of the constructions also can be seen on the roof and the house body, only this time it is even more interesting. The construction of the roof for both vernacular architecture is the same, which is a gable roof type. This is analyzed as a natural response to the tropical climate, which causes high rainfall, so the roof construction must have a certain slope so that rainwater will flow easily and not pool. Likewise, the design of the 'body' of both houses is rectangular with openings around the house, thus allowing for cross-ventilation of air inside the entire house.

Having many similarities from a functional-constructional perspective does not mean that these two vernacular architectures are the same as each other. Judging from the layout, these two vernacular architectures have different concepts. Vernacular architecture is not a static form that never changes. In certain conditions, vernacular architecture can develop according to existing trends and needs, even merge with existing developments in modernity. Recognition of a vernacular building is based on the manifestation of the change into a local form (Kirana et al., 2023). The layout of a Lanting House will usually be built according to the occupant's personalization, starting from the layout to the number of rooms (Figure 3). Meanwhile, the Imah Panggung layout only has one plan that is the same throughout the village and only differs in terms of the size (large or small) of the building itself. Continuing from the layout discussion, these two vernacular architectures have variations that are translated into different forms.

Even though they have the same cultural values, in some traditional buildings, there are adjustments in the form of decoration used, interior space patterns, or sizes that are the same as each other. Differences influence this in various personal needs (Putri et al., 2023). Lanting Houses are divided into three types of room spaces: large, medium, and small. Each space has its function, with the order usually being the large space for the shop, the medium space for the family room and kitchen, and the small space for the bedroom. This layout can be different in each Lanting House, giving the impression of richness and diversity of how each layout is enough to accommodate every type of family. Meanwhile, in Imah Panggung, where the house layout is divided into open space, usually for the front area and the living room; semi-open space, for the bedroom and kitchen; and closed space, for the rice safe, called *Pangdaringan* (Figure 1). In contrast to the Lanting House, even though the layout of each stage house is the same, each room has a different function for each gender (men and women), age (young and old), and role (husband, wife, children). For example, the Pangdaringan (rice storage room) can only be entered by the wife of the house owner.

In short, from the perspective of the functional-constructional aspect, it is found that there are a lot of similarities between these two houses. Though coming from opposite regions (water areas and mountainous areas), the construction of the roof is the same, which is in gable form to allow rainwater to fall and not stagnate. The construction of the walls is not dense, with the placement of openings facing each other, so that the air could flow more easily. The construction of the flooring is made in such a way that it does not directly touch the ground or water, to keep the temperature comfortable. The layouts are designed according to the function, whether as a shop in a watery area or as simple as a family house. All of this is to respond to the function of

the house in both regions, whether in water or mountainous areas.

3.2 Environmental

Vernacular buildings emerged as a human response in constructing their built environment to the climatic conditions of the surrounding environment. Responses that can be identified from architectural buildings can be in the form of layout patterns from the internal spatial arrangement, types of materials used in construction, proportions of openings on the building facade, and the application of shading elements to the building (Li et al., 2022). Following the research objectives, an analysis was carried out on Lanting Houses and Imah Panggung to determine how vernacular architecture from these two different regions responds to the surrounding environment.

Starting from the orientation of the house, Imah Panggung has the orientation of the house facing east or west. Given the cold and damp mountain environment, traditional Sundanese society makes sure sunlight enters and illuminates the entire house for some warmth every morning and evening. This is different from the Banjar tribe community in Lanting Houses, which do not have the luxury of determining the house's orientation, considering the river body's winding contour. Therefore, Banjar people do not build houses based on the cardinal directions but rather based on access in and out of the house, especially after they have finished fishing, as well as for access to buying and selling transactions of caught fish.

Turning to the discussion regarding the architecture of the house itself, vernacular houses always adhere to the same basic concept: being able to adapt and respond well to the surrounding environment. What is interesting about this analysis is the fact that, even though the Lanting House floats on the river and the Imah Panggung stands on mountainous land, several similarities are found. For example, the walls and floors of both houses are designed to be hollow, which allows air to flow smoothly from and into the house. However, the Lanting House uses wooden planks installed at a distance, and the Imah Panggung uses loosely woven bamboo, according to the material most commonly found in the environment. The construction of the house's foundation is also made higher than the surface: a Lanting House with wooden logs as a 'raft,' which is then added with sunduk and sloof to increase the distance between the floor of the house and the water; At the same time, the stilts with flat stones are placed under the 'legs' of the house foundation made of bamboo so that they do not come into direct contact with the ground (Figure 4).

Similarities in traditional people's mindsets in responding to the environment can also be found in vernacular architectural designs, which are based on different areas, even though they are still in the same region. For both Lanting Houses and Imah Panggung houses, there are several different house roof designs, although they still have the same gable roof construction (Figure 2.b and 4.b). However, the mindset of the Banjar people seems to be more lenient with modernization, where they do not mind using new materials such as zinc. At the same time, the Sundanese tribe still maintains traditional materials, namely palm fiber, especially in certain areas, such as locations close to the tribal chief.

Thermal comfort is the main factor that humans need in occupying their residences. Humans will make adjustments and develop adaptive designs to achieve buildings that provide thermal comfort for their occupants. These efforts are the basis for a strategy in taking a responsive approach to vernacular architecture to the environmental climate to create comfort (Sargazi & Tahbaz, 2022). The construction of a house that responds to the environment is what gives a different impression to each occupant inside. Plus, the unique materials and shapes give a unique feeling and experience when living in a vernacular house, whether it is a Lanting House that floats on a river or a stilt house in the mountains. The experience captured by each individual will provide richness in design quality and even a sense of belonging to traditional society.

Many would think that the differences between the two houses from opposite regions would be a lot more in this aspect. But after a thorough analysis, it is clear that it’s not necessarily. Both traditional people from these regions have the same way in response to the environment: both have constructed a house that is far from the ground or water for a comfortable temperature, walls that are not dense, openings that encircle the house, and the using of materials found nearby because they believe nature knows best.

3.3 Socio-cultural

A social-cultural component is essential when discussing vernacular architecture since this element has a great influence on its development in an area. The internal spatial arrangement of vernacular buildings is a

manifestation of the behavioral patterns of a community group. Each community group will have a unique character that is formed from cultural values that are developed and implemented together. The cultural values of this community become physical manifestations in its vernacular architecture (Veronica & Aulia, 2024). Thus, the socio-cultural aspects analyzed in this research will only focus on the vernacular architecture that is influenced by it. In this analysis, quite significant differences were found between the culture of the Banjar tribe and the Sundanese tribe. This is quite interesting, which is proof that there is socio-cultural uniqueness in mountain and water communities.

Banjar people's Lanting Houses have two functions: private houses and shophouses in the Lanting House, which doubles as a shop. Semi-permanent access in the form of a wooden dock is made, which allows visitors to enter the Lanting House through the front door. This means that everyone can enter this house, or what is usually called the public area. Meanwhile, in Lanting Houses which are private, usually family or close relatives will anchor their houses close together. This allows the occupants of the house to be able to enter neighboring houses easily, usually through the back door, which is common, because those in neighboring houses are usually family or close relatives (Figure 4).

This is different from the Sundanese Imah Panggung. Due to the significant differences in gender roles, not just anyone or, more specifically, not just any gender can enter the house. Even though they adhere to a family system between people throughout the village, Sundanese people have rules regarding entrances. Anyone will be warmly welcomed to come to visit, but usually, men will enter the house through the front door or sit on tepas (Figure 1. a), while women will usually enter through the back door or kitchen (Figure 1.d).

Not only is the entrance influenced by activity and gender, but socio-culture also determines the size and material used in the house. The size aspect can be seen in the Lanting House, which has the characteristics of a 'growing house,' where the space or layout will be increased or enlarged depending on the increase in the number of family members. Meanwhile, the Imah Panggung is not like that, where it is usually the same size as each other. The difference comes from the level of Imah Panggung's owner in the society. People who hold important positions, such as tribal leaders, will have very large houses. In this situation, the size of the house is also influenced by its function because the tribal leader's house is also used as a place for 'ranks' or people to gather and seek daily life solutions. People who still adhere to their beliefs and traditions will generally have principles and myths that develop in everyday life. People's beliefs about these things will control the way they build their homes. These community traditions not only have an impact on the way buildings are constructed but are also implemented in the arrangement of spatial patterns and the use of their functions (Gharavi Alkhansari, 2015).

As for the material used for the houses, the socio-cultural aspect of the Lanting House can be seen from the use of logs as rafts for the foundation of the house, which indicates that the owner of the house must be from a wealthy family, considering the very high price of logs. Apart from using logs, the Banjar tribe tends to be more lenient towards using more modern materials, such as zinc, for roofs. The traditions of each region also influence the shape of the roof of the house. Considering that Lanting Houses are floating along a long river, there are quite significant differences, especially in terms of the roof, from one part of the river to another.

Meanwhile, for the Imah Panggung houses, the materials used are a mixture of natural materials commonly found in the environment, such as bamboo and palm fiber, and contemporary materials that are commonly found, such as zinc and wooden planks. The socio-cultural aspect is visible here, where the layout of the area determines the determination of material use. Housing clusters located around or close to the Imah Gedhe, or tribal chief's house, must use natural materials like traditional houses from the time of their ancestors. Meanwhile, houses located far from the tribal chief's house are usually freer to use more modern materials. This shows the existence of a socio-cultural role that requires the occupants of stage houses to continue to maintain the authenticity of vernacular architecture, especially for those who have a 'position' in the traditional society.

Community life patterns will form a unique activity configuration, which is then expressed in the spatial dimensions of the place where they live. Through the architectural form that is manifested in an area, it can be studied how the life of its people develops and vice versa. Through the development of community culture and traditions, it can be predicted how architectural developments in an area will be shaped in the future (Saragi, 2021). Living in such a difficult region (river and mountain), these people appreciate their society and respect

their own culture. Even though, from the discussion above it seems like these two cultures are different, it is not all that different. Among them is that in these two cultures, both the vernacular architecture of the Lanting House and the Imah Panggung House, there are the same social relations: closeness between each other, judging from the position of the layout of the house; peace that can only be achieved in rural areas, judged from residential areas are far away from the city; dan sense of belonging that can be achieved through the similarities, of the location and the architectural elements (roof, ceiling, flooring, foundation).

4. Conclusion

Simplified, the examination of vernacular architecture can be accomplished by the investigation of three basic factors: climate, region, and culture. This is based on the fact that the design of vernacular architecture will always adapt to the surrounding local climate, use traditional techniques and local materials, and is strongly influenced by environmental, social, and cultural aspects. In the vast country of Indonesia, there are hundreds of vernacular architecture which is the community's response to the local environment and has become an icon and uniqueness of their respective regions.

Based on the results of the analysis in the previous sub-chapter, it can be concluded that there are significant differences between the two vernacular architectures used as the object of research this time. Due to the contrasting locations or environments where Imah Panggung is located in the mountains and the Lanting House is on the water, the materials used are very different. Not only that, but the shape of the foundation of each house is also very different, with Imah Panggung using batu tapak or treads and support pillars to avoid the cold, and Lanting Houses use logs so that the house can float. However, not all the shapes of the two houses are different. Shapes such as gable roofs, as well as the placement of openings such as doors and windows, are similar. It is analyzed that there are the same needs that are based on the same climate, which is tropical climate. The gable roof allows rainwater to flow and not pool on the roof, while the placement of the openings allows for smooth air ventilation inside the house.

From a cultural point of view, of course, these two research objects have different cultures, however, there is a common thread between Sundanese culture and Banjar culture: family-oriented attitudes. These two houses are designed in such a way as to welcome families, even with the provisions of their respective cultural traditions and customs. The position of the house in the housing complex, the design of the house facade, and the spatial space in the house all support the way of life in each culture.

The results of this analysis prove that there are significant differences between the vernacular architecture of two different tribes, namely the Banjar tribe who live along river waters, and the Sundanese tribe who live in the mountainous interior. However, interesting things were also discovered which show that these two tribes are not much different, or even have a lot in common, when viewed from a vernacular architecture perspective as explained in the discussion chapter.

This finding is considered very interesting, considering that the current understanding is the assumption that there can't be similarities between two vernacular architectures that are located in very different environments, seen from fundamental aspects: climate, region, and culture. It is hoped that in the future there will be other studies comparing two or more cultures, to find a common thread that unites the basic response of a building to its environment.

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