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Vernacular Architecture as a Representation of Nature, Self, Culture, and Society: Insights from Sumba-Timor-Flores

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Abstract

The built environment contains meaning that reflects the values chosen, determined, and owned by the community. Ethnic and cultural identities in developing countries, including Southeast Asian Countries, are the focus of debate in the rapidly developing research literature of late. Vernacular Architecture is a quite interesting topic in the 21st-century era. This study aims to explore the basic concepts of vernacular architecture as a representation of nature, self, culture, and society among three case studies, namely: Praigoli Village-Sumba Island, Kowa Village-Timor Island, Bena Village-Flores Island were selected based on the similarity of natural and cultural background. The analysis is carried out exploratively in three phases. First by exploration of vernacular architectural concepts through literature review. Second by exploration the basic concepts of vernacular architecture as a representation of nature, self, culture, and society through the sharp reading of architectural artifact phenomena, the cultural behavior of the community, and the condition of the natural environment around three case studies. Third by describing the relationship among three cases vernacular architecture as a representation of nature, self, culture, and society. Based on the results of the study, it is known that each community responds to its natural characteristics which tend to be barren and the air temperature tends to be hot with good spatial planning, material, and construction systems. Factors of nature, self, culture, and society become the circle of life in vernacular architecture, where everything is like a chain that is interrelated and does not stand alone.

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Vernacular Architecture as a Representation of Nature, Self, Culture, and Society: Insights from Sumba-Timor-Flores

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ABSTRACT

The built environment contains meaning that reflects the values chosen, determined, and owned by the community. Ethnic and cultural identities in developing countries, including Southeast Asian Countries, are the focus of debate in the rapidly developing research literature of late. Vernacular Architecture is a quite interesting topic in the 21st-century era. This study aims to explore the basic concepts of vernacular architecture as a representation of nature, self, culture, and society among three case studies, namely: Praigoli Village-Sumba Island, Kowa Village-Timor Island, Bena Village-Flores Island were selected based on the similarity of natural and cultural background. The analysis is carried out exploratively in three phases. First by exploration of vernacular architectural concepts through literature review. Second by exploration the basic concepts of vernacular architecture as a representation of nature, self, culture, and society through the sharp reading of architectural artifact phenomena, the cultural behavior of the community, and the condition of the natural environment around three case studies. Third by describing the relationship among three cases vernacular architecture as a representation of nature, self, culture, and society. Based on the results of the study, it is known that each community responds to its natural characteristics which tend to be barren and the air temperature tends to be hot with good spatial planning, material, and construction systems. Factors of nature, self, culture, and society become the circle of life in vernacular architecture, where everything is like a chain that is interrelated and does not stand alone.

Keywords: *Vernacular Architecture, Praigoli Village-Sumba Island, Kowa Village-Timor Island, Bena Village-Flores Island*

1. INTRODUCTION

Ethnic and cultural identities in developing countries, including Southeast Asian Countries, are the focus of debate in the rapidly developing research literature of late, one of them is in Indonesia. Vernacular Architecture is a quite interesting topic in the 21st-century era, especially in its relation to the issue of sustainability. Based on data from the Central Bureau of Statistics in 2010 [1], Indonesia has 1,340 ethnic groups, 737 local languages, 6 local religions, and nearly 245 local beliefs spread across 17,508 islands. Each ethnic group has a different variant of architectural manifestations.

".....The concept of Southeast Asia itself.....implied an exclusive commonality but the reality was hard to find. Eight different good-sized countries, Muslim, Buddhist, Catholic, Confucian-Taoist; Colonized by Spaniards in the

sixteenth century, by Dutch in the seventeenth, and by the Americans by the twentieth, with Siam semi-colonized by the British; significant literature in Mutually incomprehensible languages such as Burmese, Mon, Thai, Khmer, Vietnamese, Tagalog, Malay, Javanese, Old Javanese, Sanskrit, Arabic, and several others." (Anderson, 2016) [2]

1.1. Background

Nowadays, most of the studies on vernacular architecture are still case by case on one object of observation which Prijotomo mentioned will have an isolationistic impact [3]. Therefore, a comprehensive study is needed that discusses the similarities and relationships of the vernacular architectural formation and its constituent aspects (nature, social, self-value, society).

According to Archer in his paper entitled *Social Theory of Space: Architecture and the Production of Self, Culture, and Society* [4], it is known that producing architecture through daily life informs human consciousness, practice, and society. Nature is the root of the formation of architecture related to climate, geography, and environment. The self-value of humans in the form of existence and identity is also related to the cultural factor implemented in the ceremony, and the existence of sacred-profane. Furthermore, social relations among society can be seen from several factors such as social identity, kinship, gender, religion, wealth. So, it is important to see how these four frames can shape the form of Architecture, especially in the vernacular community.

The relationship between the natural and cultural backgrounds of the vernacular architectural formations in the eastern part of The Lesser Sunda Islands has significance to be studied. To find out these similarities, a study of the vernacular architectural formations in the eastern part of The Lesser Sunda Islands, namely Sumba Island, Flores Island, and Timor Island will be carried out. The appearance of the traditional house from the three study objects can be seen in Figure 1.



Praigoli Village-Sumba Kowa Village-Timor Bena Village-Flores
Figure 1. Traditional houses from three study objects

According to Solikhah (2020) [5], the structure of the house and the architectural character of the building are the most significant elements as a representation of vernacular architecture. Furthermore, architectural characteristics in the form of residential patterns of traditional houses are following the natural character and daily activity of residential.

1.2. Problems

According to the background, there is a need for the study to explore the basic concept of vernacular architecture among three cases, namely: Praigoli Village-Sumba Island, Kowa Village-Timor Island, Bena Village-Flores Island since they have a similarity of natural and cultural background.

1.3. Aims

This study aims to explore the basic concepts of Vernacular Architecture as a Representation of Nature, Self, Culture, and Society insights from Praigoli Village-Sumba Island, Kowa Village-Timor Island, Bena Village-Flores Island. This research is important to give a contribution to realizing the concept of sustainability that takes into consideration the impact on the environment, society, culture, economy for the present and future for local people.

1.4. Paper Structure

The paper is organized as follows. Section 1 introduces the background, phenomena, significance of the study, problems, and aims. Section 2 presents a literature review, then, the method used in Section 3. Section 4 Result and Discussion of exploration of Praigoli Village-Sumba Island, Kowa Village-Timor Island, and Bena Village-Flores Island to explore the basic concepts of Vernacular Architecture as a Representation of Nature, Self, Culture, and Society. Finally, Section 5 concludes the paper and presents a direction for future research.

2. LITERATUR REVIEW

2.1. Vernacular Architecture

Vernacular Architecture is a quite interesting topic in the 21st-century era, especially in its relation to the issue of sustainability. The rapidly increasing number of vernacular architecture studies in the last three decades has demonstrated a great interest by the building research community on this issue, and this is a trend that is likely to continue in the coming years. This increasing trend was observed by Nguyen et al. (2019) [6].

According to Rudofsky (1964) [7], Vernacular architecture is architecture that is done without an architect. The issues related to the sustainability of vernacular architecture are tradition itself, self-conservation methods, self-builder, legalistic aspects, ethical issues, contemporary necessities, and cultural sustainability to address solutions for sustainable design particularly for creating high-style sustainable architecture. (Asquith & Vellinga, 2006; Susetyarto, 2013) [8] [9].

2.2. Architecture and the Production of Self, Culture, and Society

Architecture is a physical form of culture, and culture develops due to cultural crossovers, encounters, and exchanges. If a building can communicate or represent cultural values, then at that point the building will be elevated into architectural works (Sumintardja, 1978; Koentjaraningrat, 1974; Prijotomo 2018) [10] [11] [12]. This thought is in line with Kusno's (2020) [13] thought in his discourse regarding the Repositioning of Archipelago Architecture, where one of the repositories is the Archipelago as a cross-civilization area (Cross-Civilizational Space) Beyond The Nation-State regarding Denys Lombard's work entitled *Nusa Jawa: Silang Budaya*. [14]. An interesting view comes from Mangunwijaya (2009) [15] who puts Architecture as *wastuwidya* which means building science. Architecture is a product of people, places, and culture; is one aspect of identity. Architectural symbolism can be associated with the realization of personal and social identity.

A home is also a form of social community to keeps residents' privacy, modesty, and preserves a sense of

hospitality [16]. The essence of Architecture is defined based on the "call from a place." Norberg-Schulz (1980) [17] states that "Human identity presupposes the identity of a place."

The built environment contains meaning that reflects the values chosen, determined, and owned by the community that cannot be separated from nature because they are interrelated [18]. This is following the opinion of Oakes (1997) [19], which states that ethnic and cultural identities in developing countries, including Southeast Asian Countries, are the focus of debate in the rapidly developing research literature of late.

This is in line with what was conveyed by Santoso (2018) [20], in Southeast Asia that has a tropical climate, houses have several functions such as a place for living, a place for storage, a place for ritual, a place for performance.

2.3. Sustainability of Vernacular Architecture

The sustainability of vernacular architecture will be greatly influenced by various aspects such as socio-culture, economics, and nature-environment. One of the approaches to discuss sustainability is *the Sustainability Model Theory* by Pillai (2013) [21] namely socio-culture, economics, and environment. Hence changes that disregard the ideas of the social and climatic aspects bring about an unsustainable architecture. So, the main challenge of vernacular architecture is the continuity of harmonious natural, self, cultural, and social aspects.

Local vernacular architecture offers a rich repertoire of architectural knowledge not only in the field of design, innovations, and sustainable techniques but also in other theoretical fields. Current interest in sustainability is concerned with articulating ways of managing economic growth such that the quality of life of future generations is ensured. Transformations and adaptations of architecture, which generate awareness of sustainability explored in those regions may help develop a good understanding of how the vernacular local architecture can still help the construction of sustainable settlements. (Rashid & Ara, 2015; Dayaratne, 2018; Küçük, 2014) [22] [23] [24].

2.4. State-of-the-Art

There have been several previous studies as research parameters. The term 'vernacular architecture' is used, many times is confused with the term 'traditional' and 'folk'. Research with theme Vernacular Architecture insight Southeast Asian emphasis an exploration the main issue is thus diachronic change as it affects houses and settlements as part of the built environment, both in their material aspects and in their functions as objects of social value and meaning. Sustainability of vernacular settlement done by its community itself that protected by customary rules. (Waterson, 2009; Schefold et al., 2003; Gunawan, 2018; Mross, 1997; Hariyanto, 2012; Wazir and Indriani, 2020; Karani, 2014; Sato, 1987; Lapenangga, 2020) [25] [26] [30] [31] [32] [27] [33] [28] [34]

Josef Prijotomo (2019) in his paper entitled *Keserupaan dan Kesamaan dalam Arsitektur Nusantara – NTT* stated that there are two different types of building appearance in NTT, namely the Sumba-Flores to Timor Leste type as the North series and the type from Sumba-Sabu Raijua to Timor Leste as the south row. The difference in topographical characters from the north and south series can be seen in the architectural appearance, namely the impression of verticality for the north series and the impression of horizontality for the south series [3].

Another study of vernacular architecture was conducted by Solikhah (2020) [35], with a focus on Praigoli village, it is known that vernacular architecture contributes to sustainability and the continuity of harmonious cultural life related to tradition itself, conservation itself, self-builder, legalistic aspects, ethical issues, physical control, social milieu, functional frame, and cultural symbolization as well as bringing together issues of contemporary life needs and cultural sustainability.

Therefore, the study of vernacular architecture as a representation of nature, self, culture, and society: Insights from Praigoli Village-Sumba Island, Kowa Village-Timor Island, and Bena Village-Flores Island have novelty especially to draw a common thread from the three.

3. METHODS

The research paradigm used is naturalistic with a qualitative research strategy in the form of an Interpretive-Historical Research approach. Excerpted from Linda Groat [36], interpretive research specifically an investigation of socio-physical phenomena in complex contexts, to explain these phenomena in a holistic narrative form (Figure 2). Moreover, Darjosanjoto said that Systematic interpretation of data and facts will provide more reliable historical search results or reconstructions [37]

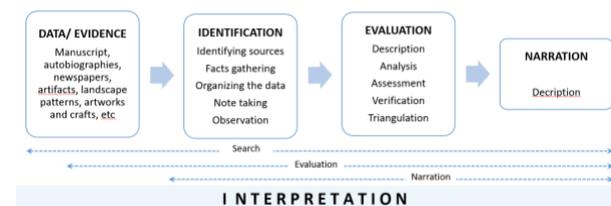


Figure 2. Chart of interpretive research

Three study objects were selected based on the parallel relationship of vernacular architecture in *The Lesser Sunda Islands*, namely (1) Praigoli Village, Sumba Island; (2) Bena Village, Flores Island; and (3) Kowa Village, Timor Island. The three study objects can be seen in Figure 3.



Figure 3 Three study objects

4. FINDINGS AND DISCUSSIONS

4.1. Insights from Praigoli Village-West Sumba

Praigoli Village is located in West Sumba Regency, East Nusa Tenggara Province, Sumba Island, Indonesia (Figure 4). West Sumba Regency has a wet and dry tropical climate (Aw) on the coast and a tropical monsoon climate (Am) in the interior with two seasons, namely the dry season (*maratana*) which lasts from May to November and the rainy season (*riggihuta*) which lasts from December to April. With an average rainfall of only 7,417 millimeters per year, West Sumba Regency is one of the driest areas in Indonesia. Annual rainfall is quite low, ranging from 800-1600 mm per year with about 70-130 rainy days per year. The air temperature ranges from 25 °C - 33 °C with a minimum temperature of 21.8 °C and a maximum of 33.9 °C in the dry season. The river that crosses the nearest Praigoli Village is the Wanokaka River (Labariri River). The topography of western Sumba is dominated by a series of mountains, savanna, and limestone hills.



Figure 4 Location of Praigoli Village, Sumba Island, Indonesia

The Praigoli community responds to its natural characteristics which tend to be barren and the air temperature tends to be hot with good spatial planning and construction systems. The application of an open plan system in the spatial layout allows flexible use of the room, there is also a separate zone for men and women (Figure 5).



Figure 5 Open plan system in the spatial layout allows flexible use of the room and separate zone for men and women [35]

All the walls and floors of the house are made of bamboo with a reinforced wooden structure and ties. Although there are customary rules that limit the use of certain parts of the space, from a technical point of view (airflow, lighting during the day) it is quite good. The use of bamboo on the walls and floors allows the building to "breathe" so that the smoke generated from activities in the kitchen can flow out of the house (Figure 6). The smoke from the kitchen also serves to dry the reeds that cover the roof so that it becomes drier and stronger. wooden poles on a Sumba house equipped with a wooden ring/ *lele* (Figure 6).



Figure 6 Breathable wall structure

A traditional house in Praigoli village is a house on stilts with three partite house type at once as a symbol of the unity of the human body and the universe, namely: Toko Uma (The Head), Bei Uma (The Body), and Kali Kabunga (The Feet) that can be seen in Figure 7. All the foundations are planted in the ground. The roof has a pyramid shape and is covered by a reed. The pyramid has 2 functions, namely for air and light circulation also storage of valuables.



Figure 7 Three partite house style

Kajiwa stone shows the existence of the Praigoli's people since the megalithic era (Figure 8). Praigoli villagers still hold fast to their belief in Marapu (an ancestral spirit that connects with the Creator) and manifested by spatial planning (including *Natar* as the center of the village), customary practices, rituals, and their daily activities.



Figure 8 *Kajiwa* Stone, *Natar* and *Pasola*

The Sumba kinship group is known as the *Kabisu* (Klan), which is a patrilineal kinship group (lineage from the male

side). Each *Kabisu* has been led by *Rato*. *Rato* also plays a role in leading traditional ceremonies.

The intangible elements, namely socio-cultural values and experiences that can be enjoyed with the community, are important points for creating interaction. Sumba community, including Praigoli, have socio-cultural significance that is still adhered to by the people of Sumba, namely the *Marapu* belief which is manifested in everyday life. Other ceremonies carried out by the people of Praigoli such as *Pasola*, a gravestone withdrawal ritual, a marriage ceremony, a death ceremony.

4.2. Insights from Kowa Village - Timor Leste

Kowa Village is located in Bobonaro Regency, Balibo District, Timor Island, Timor Leste (Figure 9). Kowa village is located in the lowlands surrounded by mountains and hot springs. The climate in the country of Timor Leste is a dry tropical climate with low rainfall.



Figure 9 Location of Kowa Village, Timor Island, Timor Leste

Excerpted from Fox (2002) [38], Timor Island is a meeting place for Austronesian and non-Austronesian speaking populations as well as a trade route for sandalwood from China. Cultural differences and openness to the outside are reflected in the characteristics of architectural forms on the island of Timor. The traditional house of Kowa village with a Three-partite concept but the floor is directly on the ground. The roof has a pyramid shape and is covered by a reed almost touching the ground (Figure 10). This structure is one of the characteristics of the architectural formation of houses on the island of Timor (other examples are the Amarasi House and Atoni House [38]).

The basic plan of Kowa's house is a square with an open plan concept. The interior is emphasized as a women's room associated with the kitchen fire and storage of rice grains as a symbol of life. The Kowa's kinship group is known as the is a patrilineal kinship group (lineage from the male side).



Figure 10 Three partite of Kowa's traditional house

The main building materials used are *ai-naa* wood as the main structural column, *piku* wood as walls, rope-resistant as roof covering, *ai-kakeu* wood used as beams, and reeds as roof covering. All the walls of the house are made of

wood with wooden structures arranged and reinforced with ties. The use of wood on the walls and reeds as a roof covering allows the building to "breathe", so that the smoke generated from activities in the kitchen can flow out of the house (Figure 11).

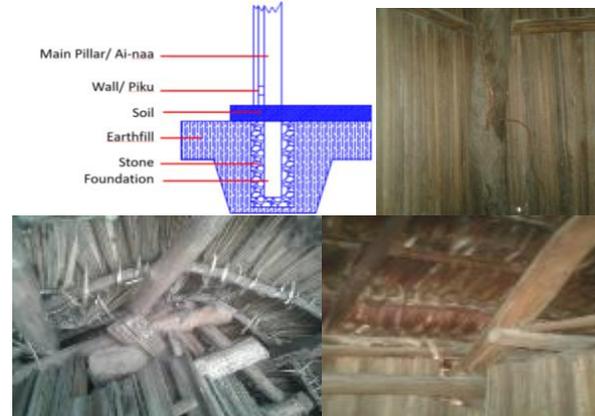


Figure 11 Type of joints and building envelope

The traditional house of Kampung Kowa also commonly called "Lalis" is also believed to be a legacy from the previous owner of the house (ancestor), including some furniture such as: *Tais*, *surik* (golden pedan) and *belak (belis)* and king's clothes, spoons and plates. The room at Lalis has different elements or meanings. The traditional house of Lalis also functions as a common home for the extended family of the Kowa's community, especially during traditional ceremonies.

The people of Kampung Kowa have a traditional leader who is usually called a *Lia nain*. The ancestors of the Kowa tribe have 3 descendants, namely: *Mau Leki* (lives in the traditional house of *Lalis*), *Mura Leki* (lives in the traditional house of *Lalis Mane Klaran*) and *Mela Leki* (lives in the traditional house of *Lalis Mane Iku*).

The position of the traditional ruma lalis has a North-South orientation. The position of the building looks forward to the north and faces a hill called *Natar* (as the center of village). *Natar* is a sacred place or a place to carry out ritual ceremonies such as *sau batar* offerings to ancestors, marriage events or giving dowry (*belis*).

4.3. Insights from Bena Village, Ngada

Bena Village is located in Ngada District, East Nusa Tenggara Province, Flores Island, Indonesia (Figure 12). The area of Ende Regency is included in a series of volcanic trails which is located at 8°26'24.71" South Latitude – 8°54'25.46" South Latitude and 121°23'40.44" East Longitude – 122°1'33.3" East Longitude. Climatic conditions are mostly dry with an average annual rainfall of 1,508-2,750 mm.



Figure 12 Location of Bena Village, Flores Island, Indonesia

The Bena's people respond to their natural characteristics which tend to be barren and the air temperature tends to be hot with good spatial planning and construction systems while adhering to customary regulations.

The basic plan of Bena's house is a square with a linear concept with a house on stilts construction. The interior is emphasized as a women's room associated with the kitchen fire and storage of rice grains

All the walls of the house are made of wood with wooden structures arranged and reinforced with ties. The use of wood on the walls and reeds as a roof covering allows the building to "breathe" so that the smoke generated from activities in the kitchen in the main room (*One*) can flow out of the house (Figure 13).



Figure 13 Kitchen in the main room (*One*)

Kampung Bena was founded by *Kengi, Kengo, Pati, and Leki* from members of the Bena clan (*ana woe*) and the Ngadha clan. Bena Village is a cultural reference for the Ngadha Tribe, one of which is the *Sobhi Reba* ritual which is held every December 27 as a reference in determining the new year according to traditional calculations. The Ngada community in Bena Village is led by a traditional leader called *Mosalaki*. The lineage of the Bena community is matrilineal, taken from the mother's side so that the inheritance rights of the traditional house (*sa'o*) from parents will be given to daughters. Bena community life clings to the existence of ancestral spirits (*Mori ga'e*).

The spatial structure of Bena village consists of a central courtyard (*Loka*) and a house (*sa'o*). *Loka* has a spiritual function because it stands like a traditional building of *bhaga, ngadhu, pe'o* and ancestral stone graves. However, the community uses it every day for activities, such as drying the harvest, a place for children to play, and other social activities (Figure 14).



Figure 14 Community activities in *Loka*

The roof has a pyramid shape and is covered by a reed for air and light circulation also storage of valuables. Each ridge of the house has a symbol of a traditional house such as *Anaie* as a symbol of a women's house, *Ata* as a symbol of a man's house (Figure 15).



Figure 15 Type of Symbol in Bena's House

The basic concepts of vernacular architecture as a representation of nature, self, culture, and society are very strong seen in the three case studies, namely: Praigoli Village-Sumba, Kowa Village-Timor Leste, Bena Village-Ngada were selected based on the similarity of natural and cultural background (Figure 16).

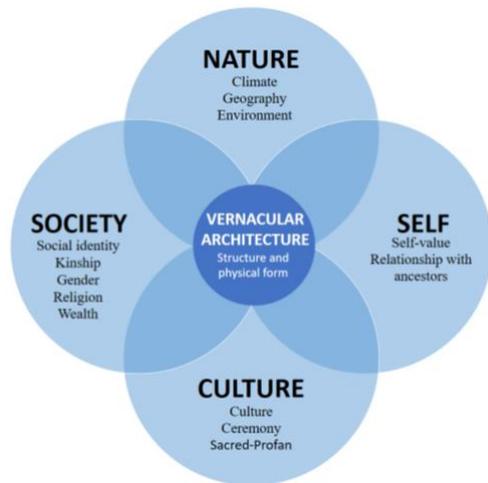


Figure 16 Vernacular architecture as a representation of nature, self, culture, and society

Each community responds to its natural characteristics which tend to be barren and the air temperature tends to be hot with good spatial planning, material, and construction

systems. The use of Three partite house style in architectural formations in Praigoli Village and Bena Village is in the form of a House on stilts, while in Kowa Village the floor is directly above the ground. The roof of the three study objects has a common thread in the form of a pyramid shape and is covered by a reed. However, the roof of the Praigoli village house is higher than the roof of Kowa and Bena's house.

The intangible elements, namely socio-cultural values (*Marapu, Lia nain, Mori ga'e*) and experiences that can be enjoyed with the community, are important points for creating interaction beliefs which is manifested in everyday life.

The concept of the inner courtyard is one of the concepts of spiritual and functional spatial settlement. (*Natar* in Praigoli Village and Kowa Village, *Loka* in Bena Village). The open courtyard is not only a place for spiritual elements but also useful for daily activities as well as an evacuation area in the event of a disaster (such as fire and earthquake).

5. CONCLUSION

Based on the results of the study, it is known that:

- a. The integration between tangible and intangible elements makes houses have several functions such as a place for living, a place for storage, a place for ritual, a place for performance.
- b. Factors of nature, self, culture, and society become the circle of life in vernacular architecture, where everything is like a chain that is interrelated and does not stand alone.

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