



## The Sustainability Concept of Osing Traditional House in Kemiren Banyuwangi

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### Abstract

**Keywords:**

*Sustainable  
Architecture; Osing  
Traditional House;  
Sustainable Aspects*

Nowadays, the high development of technologies and the density of the population demands high housing necessity. If there is no balanced between them and the environmentally concept, it will certainly cause problems to the next generation in the future. The sustainability concept in architecture is one alternative way which can be used to overcome this problem. Based on the prior theory, the traditional house applies the concept of sustainable architecture. Osing Traditional House from Osing Tribe also uses the concept. The Osing traditional house is located in Banyuwangi City. This study aims to prove the truth of the theory of sustainable architecture concept in traditional houses, especially in the Osing Traditional Houses in Banyuwangi and identify spatial patterns, structures, materials and other parameters that are considered to sustainable aspects. In the study, it was found that the Osing Traditional House includes aspects of topography, spatial patterns, structures and building materials as well as other parameters that contain to sustainable aspects.

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### 1. Introduction

The advancement of technology, especially in the field of construction in the modern era as well as rapid population growth, demand the high necessity for housing today. If residential development is not balanced with the concept of environmentally development, it is feared that it can cause problems for future generations, especially in the environmental and resource aspects. Therefore, the Government of Indonesia is intensively launching a sustainable program in its development to deal with this situation. The concept of sustainability in architecture is considered to be one steps to overcome the problems in the field of development. Sustainable architecture is an applied concept in the field of architecture to support the concept of sustainability, namely by maintaining natural resources to last longer, which is associated with various aspects of life, one of which is in the field of architecture (Kurniawan et al. 2020).

In fact, sustainability aspects can be found in traditional architecture. Traditional architecture has the same approach as the concept of sustainable development because it responds to and respects nature as its context (Manurung, 2014). The form of traditional architecture is the 'traditional house'. The house itself is the result of the local wisdom of the local community which is tangible because it is a dwelling (Nur, et.al. 2009). Local wisdom is local ideas that are wise, full of wisdom, of good value, which are embedded and followed by community members (Musafiri, et.al. 2016). Therefore, this local wisdom reflects the values that exist in the local community, one of which can be seen from the traditional house. Thus, traditional houses are the highest cultural representations that exist in a community (Hariastuti, 2019).

One of the indigenous tribes located on the east coast of Java Island and still has a distinctive traditional house that reflects the values that exist in its community, namely the Osing tribe. The tribe is a local tribe in Banyuwangi. The District of Banyuwangi is located at the eastern of Java Island and it faces to Bali Strait. This geographical condition, historical journey, applied technology and other factors give rise to a distinctive feature of the Osing Tribe's traditional house which of course reflects the character and values of the local community. It can be observed from the form of space, structure, and building materials in the traditional house of the Osing tribe. Therefore, in this paper, the researcher wants to observe and analyze the form of space, structure, construction materials and other parameters that are suitable, for the Osing Tribe Traditional House by using the study of the concept of sustainability in architecture. In this study, the limitation of sustainability review is seen from only three aspects, namely environmental, socio-culture, and economic. The study aims to prove the correctness of the implementation of sustainability aspects in the Osing Traditional House and identify spatial patterns, structures, materials or pattern, and other parameters that are considered to meet the sustainable aspects. However, the final result of this research is expected to provide benefits in increasing knowledge about materials that can be used to support sustainability aspects and can be used as the basis for innovation in the development of environmentally construction materials.

## **2. Material and Method**

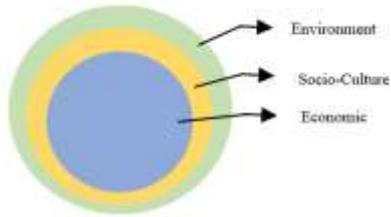
The study uses qualitative-descriptive method. The using of qualitative-descriptive method itself is used to identify the space, structure, material, and other parameters of the object of research, namely the Osing Tribe traditional house which is analysed for sustainability in 3 pillars (environmental, socio-culture, and economic). The method of data collection is done by observing the area indirectly through map images and reviewing the results of related previous studies. Thus, the final result of the research is in the form of qualitative descriptive data from the object of observation which is compared with previous theories related to the current research.

### **Sustainable Theories and Indicators**

Steele (1997) argues that an architectural concept is said to be sustainable if the architectural concept can meet the needs of its users today, without compromising the ability of future generations to meet these needs. In the field of architecture, the concept of sustainability can be seen from how to maintain natural resources to last longer which is associated with the life of the vital potential of natural resources in the human ecological environment (Guyer, 2009). Thus, in its influence with the environment, sustainability has a picture like a concentric circle.

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**Figure 1.** Concentric Circle of the Relation Between environment, socio-culture, and economic

Based on the concentric circles on the side, a theory can be drawn those environmental aspects have a fairly dominant influence on social and economic aspects in society (Maharlika and Fatimah, 2019). Thus, an indicator is produced that becomes a reference in the concept of sustainability which is shown in Table 1 as follows:

**Table 1.** Sustainability Indicators

No	Sustainability Indicators
1.	Lighting
2.	Air Circulation in Room
3.	Passive Solar Heater
4.	Natural Air Duct
5.	Energy Efficiency
6.	Energy Utilization
7.	Minimization of Construction Waste
8.	Water Conservation
9.	Solid waste management
10.	Renewable energy
11.	Natural Landscape
12.	Land Conservation

Sources: Maharlika and Fatimah, 2019

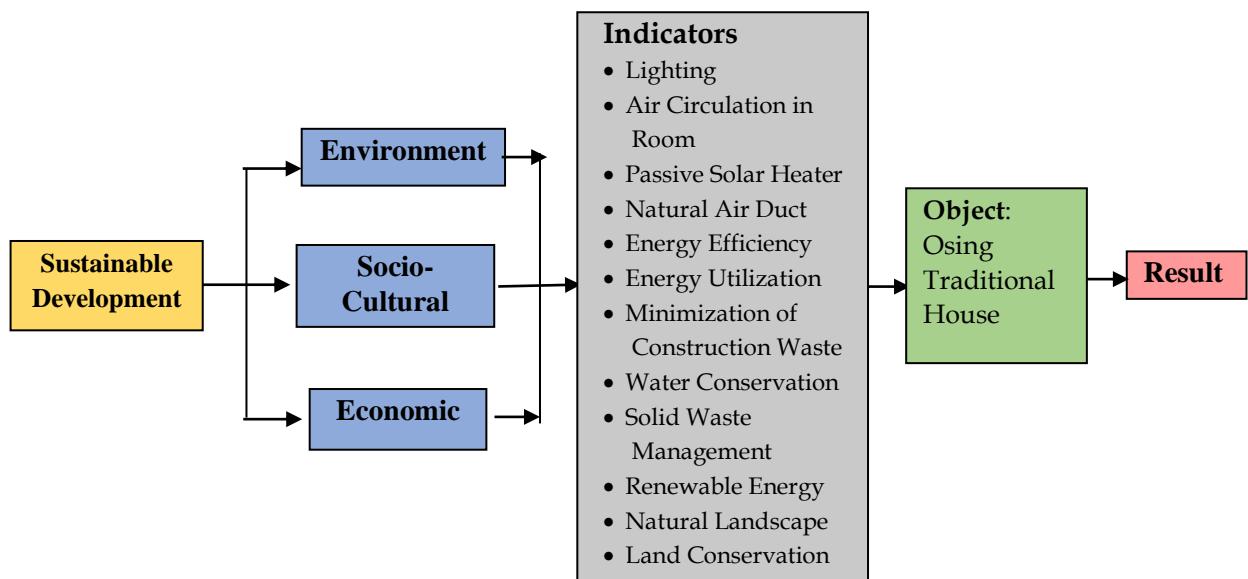
## History of Osing Tribe

Banyuwangi is a district located at the eastern end of the island of Java. In Banyuwangi, there are various tribes that grow and develop. One of them is the Using tribe which is a native tribe that inhabits Banyuwangi. Osing itself is terminologically derived from the word 'sing' which is often uttered by the Usings tribe, which means "no", meaning people who did not take refuge during the Puputan Bayu War (Soetopo and Bahtiar, 2018), so they remained in the Blambangan area which became the city of Banyuwangi. Blambangan itself is a kingdom led by a king, namely Menak Jinggo (Suhalik, 2020.). Menakjinggo is the king of the Blambangan Peninsula (Banyuwangi today) who rebelled against the government of the Majapahit kingdom at that time (Mariati et al. 2016). While the Puputan Bayu War itself was the resistance of the people of Blambangan (Banyuwangi at that time) which took place in 1767-1773 against VOC troops which resulted in many casualties (Abdullah, 2019). The Blambangan people who did not participate in the war who still live in Blambangan are known as the Osing tribe to this day. According to Yuliati & Puji (2014), the Osing Banyuwangi tribe is currently scattered in several sub-districts in Banyuwangi, namely: Glagah, Kabat, Rogojampi, Songgon, Singojuruh, Cluring and Tile. However, the area that is often used as a tourist and research destination is Kemiren Village in Glagah District, Banyuwangi. Thus, in this

study, the Osing tribe in Kemiren village is observed as well as the cultural artifacts in the form of traditional houses.

### Sustainability Parameters in The Research

To make the research to be easier to analyses the sustainability aspect of the Osing Banyuwangi Traditional House, the authors classify sustainability into 12 parameters. Then each parameter will be analysed in three categories of application, namely the environmental, socio-culture, and economic aspects. In Table 2, the format of the analysis of the aspects of the carried out in this research as follows:



*Figure 2. Diagram of Sustainability Parameters and Indicators in the Research*

### 3. Result and Discussion

The definition of a traditional house is a building which has the structure, preparation, shape and function of the accompanying motifs which have their own characteristics (Febrian et al. 2019). Traditional houses are born from local cultural values so that they can represent culture in society (Hariastuti, 2019). The Osing Banyuwangi Tribe represents their local culture, one of which is through the local traditional house. Therefore, the traditional house describes the identity of the owner.

### The Construction of Osing Traditional House

Osing tribe has three types of traditional houses seen from their shape, especially the roof shape, namely: cerocogan, baresan, and tikel balung (Nur, et.al. 2010). Each roof has its own definition (Febrian et al. 2019) as follows:

1. Tikel Balung: symbolizes the twists and turns of domestic life
2. Cerocogan: describes the union of a man and a woman in marriage
3. Baresan: symbolizes a household that is in order or going well.

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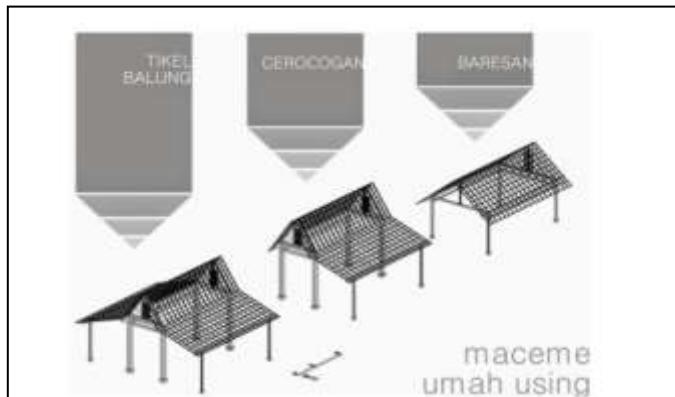


Figure 3. The Roof Shape of Osing Houses

Source: (Febrian et al. 2019)

The concept of Osing house is influenced by the assessment of the meaning of the activities carried out and who inhabits or carries out activities in the space (Hariastuti, 2019).

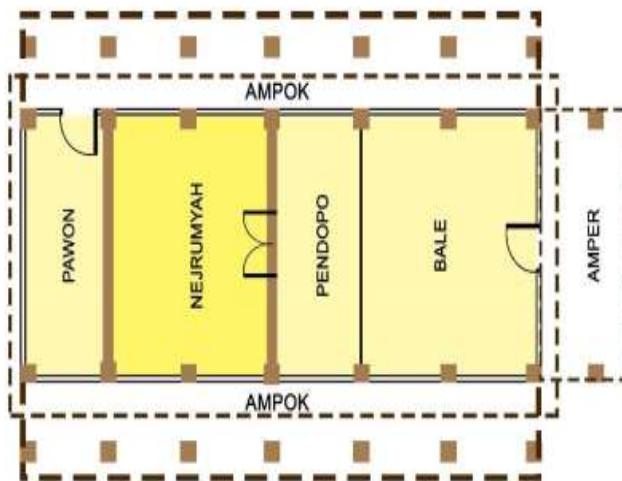
Table 2. The Structure of Materials in Traditional Osing House

No	Structure	Materials
1.	Main Pillars Structure	Use wood (saka) in the form of a frame arrangement of 4 poles without nails using paju (flat pegs), wood in the form of bendo wood, tanjang risip, and cempaka obtained from the surrounding forest (Alas Kali Bendo)
2.	Roof Cover	Roof Tile is made of clay (used to use coconut leaf welit)
3.	Floor	Most are still on the ground floor,
4.	Wall	Use woven bamboo (gedheg) on the sides and back of the house partition
5.	Ceiling	Do not use the ceiling
6.	Foundation	Use bendo wood (wood taken from the Bendo Banyuwangi forest)
7.	Reng and Usuk	Bamboo

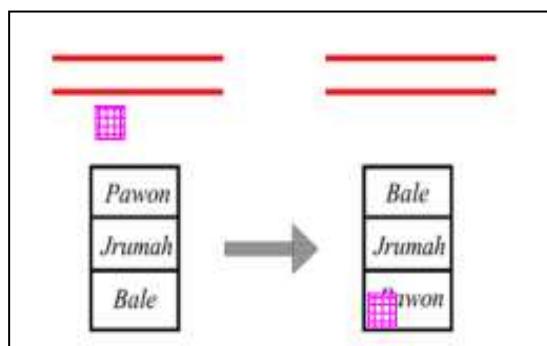
Sources: (Hariastuti, 2019; Wijaya and Purwanto, 2017)

### The Space Pattern of Osing Traditional House

According to Wijaya and Purwanto (2017), the space in the Osing tribal traditional house consists of 3 main rooms, namely: Bale (the front which functions as a entertaining room and a room for traditional activities), njerumyah (the private part is usually called the family room and in this area is there is a sleeping area), and pawon (area for cooking). As for the amper (front porch), ampok (side terrace), and pendopo (large room in front of the house) are supporting spaces.

**Figure 4.** The Plan Floor of Traditional Osing Houses

Source: (Wijaya and Purwanto, 2017)

**Figure 5.** The Changes in the pattern of the Osing House

Sources: (Nur, et.al. 2010)

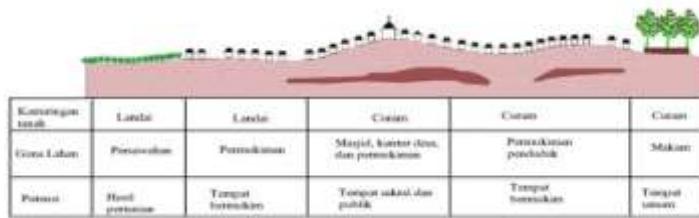
At first the spatial pattern in Using's house was in the form of pawon-njrumah-bale, but after independence it changed to bale-njrumah-pawon. This is because initially the results of the rice barn were stored in the bale section to make it easier for people to work, so the house faced the barn (a place to store rice), but as roads were built to facilitate access, the bale section faced the road and the barn was stored in the pawon section (Nur, et.al. 2010).

### The Topography of Kemiren Village

The Osing traditional house in Glagah Sub-District is located in Kemiren Village. The topography of Kemiren village is bumpy because the village is located on the eastern slope of Ijen Mount (Musafiri, et.al. 2016). The physical boundaries of the Kemiren village area in the north and south are the Gulung and Sobo rivers, which function for irrigation of rice fields (Nur, et al (2009). The following image presents the topographic transect of Kemiren Village.

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**Figure 6.** East-West Section of Kemiren Village

Sources: (Nur, et.al. 2010)

## The Analysis of Sustainability Parameters in Traditional Osing House

In determining the sustainability aspect that is applied to the Using Tribe's traditional house, a study of the existing parameters with the structure, topography and spatial patterns of the Using Banyuwangi traditional house is carried out, which is then implemented in 3 pillars of sustainability. The following table shows the comparison of indicators and study results:

**Table 3. Analysis of Sustainability Parameters**

No	Sustainability Indicators	Application in Aspects		
		Environment	Socio-Culture	Economic
1.	Lighting	<ul style="list-style-type: none"> <li>- In the morning and afternoon using natural lighting</li> <li>- There are holes in the bamboo walls also affect the lighting of the room</li> </ul>	<ul style="list-style-type: none"> <li>-By the natural lighting, of course, the entire Using tribe in Kemiren village feels more comfortable in their activities, sunlight can increase enthusiasm and a sense of warmth in the house, especially seeing the contours of Kemiren Village which is on the slopes of Mount Ijen which tends to be cold.</li> </ul>	<ul style="list-style-type: none"> <li>- With natural lighting, you will be able to save expenses for using lights, etc.</li> </ul>
2.	Air Circulation in Room	<ul style="list-style-type: none"> <li>- The use of windows and vents still produces good air exchange without harming the environment.</li> <li>- A roof without a ceiling is believed to make air circulation smooth</li> </ul>	<ul style="list-style-type: none"> <li>By the equation of the house shape model, it can be assumed that the indoor quality is the same, so that people feel the same way, natural air quality increases the comfort for local</li> </ul>	<ul style="list-style-type: none"> <li>No need to use air conditioner. The use of large windows without lattices and large walls makes it easier for air to flow in and out of the room.</li> </ul>

No	Sustainability Indicators	Application in Aspects		
		Environment	Socio-Culture	Economic
			residents in their activities in the house.	
3.	Passive Solar Heater	-	-	-
4.	Natural Air Duct	- The use of large two-door windows, vents, and large walls regulates air exchange properly so there is no need for artificial air conditioners	-By the equation of the house shape model, it can be assumed that the quality of the room is the same, thereby increasing the comfort for local residents in their activities in the house	- The use of large two-door windows, vents, and large walls regulates air exchange properly so that it does not require artificial air conditioning so it is more economical
5.	Energy Efficiency	- Utilization of natural structures, both windows and air ducts, makes the Using house not require excessive energy	-The Osing Tribe of Kemiren Village utilizes natural ingredients that come from nature so that they feel belonging and at one with the surrounding nature	-The Utilization of natural structures, both windows and air ducts, makes the Using house not require excessive energy
6.	Energy Utilization	- Utilization of solar energy, river water for irrigation gives a natural and environmentally friendly impression	-The use of building materials taken from nature is taken as necessary without being excessive, so that it reflects a sense of respect for the surrounding nature for the Using . community	-Utilization of solar energy, river water for irrigation makes it more economical
7.	Minimization of	- Osing traditional	-The use of	- The simple

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No	Sustainability Indicators	Application in Aspects		
		Environment	Socio-Culture	Economic
	Construction Waste	houses use natural and simple designs and materials to produce waste that is easy to recycle because it is natural so it is environmentally friendly.	building materials taken from nature and returned to nature reflects a sense of respect for the surrounding nature for the Osing community	design of the Using traditional house, and natural materials minimize the use of excessive construction materials so that the waste generated is not large
8.	Water Conservation	- The settlement of Kemiren village, the Osing tribe does not use special water conservation because the water uses water from the mountains	-Using the same source, namely water from mountain springs, so that all the same there is no gap between the community so that they feel a sense of belonging between residents so that it creates a feeling of caring for nature	- In the residential area of Kemiren village, the Using tribe does not use special water conservation because the water uses water from the mountains
9.	Solid waste management	- Solid waste in the settlements of the Using tribe is separated and grouped, then what can be recycled will be distributed to collectors and the natural one is used for crafts so that does not pollute the environment	-	- Solid waste recycled is sold to collectors and the natural one is used for crafts so that it produces economic value
10.	Renewable energy	-	-	-
11.	Natural Landscape	- Well-managed land conditions and very beautiful natural conditions from the start keep the environment good and safe	- The natural environment that is still beautiful reflects the respect and gratitude of the Using community for the blessings of the Creator, thereby increasing the sense of	- The arrangement of the land is neat and natural, causing this design to be frequented by tourists and researchers to review the natural beauty and the inherent culture.

No	Sustainability Indicators	Application in Aspects		
		Environment	Socio-Culture	Economic
12.	Land Conservation	- The Arrangement of land in such a way that new land clearing remains beautiful and comfortable to support reforestation	responsibility to keep the natural surroundings beautiful.	- The Osing Tribe people tend to protect their nature as a form of gratitude to God, traditional ceremonies are often held to give thanks for the produce that the Using Tribe community gets.  -The land is arranged in such a way that the clearing of new land remains beautiful and comfortable to support reforestation

#### 4. Conclusion

The traditional house of the Using Banyuwangi Tribe has an architectural design that meets the requirements for the Sustainability category. This can be seen from the environmental topography, structure, building materials, as well as the supporting parameters in the sustainable analysis in this study, which are summarized as follows:

1. Topography: The Using traditional house is located in Kemiren Village. The topography of a bumpy village located on the eastern slope of Mount Ijen shows the natural location of this village.
2. Spatial Patterns in the Using Traditional House: maintaining local cultural values with the meanings of space that are implicitly present in the Using community.
3. Structure and Building Materials: using natural materials obtained from nature around the settlements with the application of traditional technology in its construction
4. Other Sustainability Parameters: natural lighting, clean room air quality, energy efficiency, natural energy utilization, minimization of construction waste, water conservation, and natural landscapes, show that most of the sustainability parameters are in accordance with natural principles.

Based on these data and facts, it can be seen that architectural design that always prioritizes nature as the centre of development and management of the green environment is a sign of the fulfilment of the sustainable concept in the architectural design of the Using Traditional House. In addition, the Using Community also applies local wisdom that has been passed down from generation to generation in their daily activities, both in the economic and social fields. Thus, based on the results of research analysis, the concept of sustainability is really contained in the architectural design of the Osing Traditional House.

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