

Sense of Place in Vernacular Settlements: Insights from the Hukaea Laea Traditional Village, Southeast Sulawesi, Indonesia

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Abstract

The relationship between people and places (living ecosystems) is significant in sustainability. One vital element in maintaining life in harmony with Nature in traditional villages is the indigenous people who live in the vernacular settlements. A strong community sense of place can ensure and preserve the environmental ecosystem. In this context, this study explores the sense of place aspects of vernacular settlements of indigenous people living in the Hukaea Laea Traditional Village in Indonesia which represents the indigenous people living in harmony with the natural environments.

It observed the physical landscape and social, economic and cultural aspects. Local wisdom of the Hukaea Laea indigenous people, in terms of how the settlements are integrated into the physical settings, activities, and meanings were ascertained. Interviews, photo elicitation, open-ended questionnaires, and literature were employed to obtain data. Photo elicitation complemented information from the interviews. Direct involvement of the informants in interpreting places and their daily activities generated information and meaning. Data was analyzed by coding and spatial analysis.

The study found that the physical setting, activity, and meaning are three things that correlate to each other in forming a sense of place. The physical setting is the natural environment and the built environment. They are the forest areas (natural environment settings - macro scope); residential areas (built and natural environment settings -meso scope), and residential areas (built environment setting - micro scope). Important places that have a strong sense of place for people are forests, savannas, stone wells, planting areas, hills of mode, vernacular settlements, rivers, springs, rice fields, traditional halls, schools, mosques, cemetery, fields, patchouli distilleries, and dwellings and their surroundings. Activities carried out by the community relate to cultural rituals, conservation (preservation & protection of nature), recreation, social interaction, education (formal), household activities (domestic), and economic activities. Each place has a meaning related to history, heritage, natural bonds, relaxation/healing, social bonds, development of skills, and fulfillment of physiological needs.

Keywords: Sense of place, Vernacular settlement, Conservation area, Hukaea Laea, Rawa Aopa Watumohai

Introduction

Human beings are part of Nature, and respect for the natural environment is a very positive value for sustainable development (Heryanti, 2019). Increasing evidence highlights biodiversity's importance in stabilizing and maintaining optimal ecosystem function. Anthropogenic threats can cause loss of ecosystem degradation (Mori et al., 2013), global forest degradation, which is also happening in Southeast Asia (Hasan et al., 2021). In December 2022 the UN Biodiversity Conference agreed on an innovative new framework for protecting biodiversity. One of the targets is strengthening the rights of indigenous peoples who are the primary guardians of biodiversity (UN Environment Programme, 2023). In the world, there are more than 476 million indigenous peoples spread across 90 countries, about 6.2% of the world's population (www.un.org), and the majority (70%) are in Asia (www.amnesty.org). Indigenous peoples who usually live in traditional villages with their vernacular settlements have a concept of life that is in harmony with their natural environment.

Traditional villages carry the essence of traditional culture, inseparable from the natural, cultural, economic, and social environment where people live. Traditional village values lie in aspects of heritage and cultural essence as well as harmonious spatial memory between humans and nature; the community cultivates nature with local wisdom. Traditional villages are a precious resource because they provide authentic examples for studying history, architecture, archeology, sociology, folklore, and vernacular culture, which are integrated with the context of their natural environment (Bian et al., 2022). Traditional villages that have not yet developed have the opportunity to be destroyed over time; protecting cultural heritage makes traditional villages more developed and sustainable (Hui & Xia, 2022). Art, culture, and nature are models of new, more sustainable approaches to recovery (Nuryanti & Sanders, 2021). The naming as a 'traditional village' has an essential role in increasing the sense of attachment and pride in the village community, where this pride becomes the capital/motivator for the community to maintain its sustainability (Qin & Leung, 2021).

Indonesia is one of the countries in Southeast Asia with a high Indigenous population, with an estimated 40-70 million people (www.aman.or.id) spread across the Indonesian archipelago. One of them is the Hukaea Laea Indigenous Peoples who are the Moronene Tribe who occupy Kampo Hukaea Laea, which is administratively located in Watu-Watu Village, Lantari Jaya District, Bombana, Southeast Sulawesi. The Hukaea Laea Traditional Village is in a conservation area enclave in Rawa Aopa Watumohai National Park. The Moronene people had managed their ancestral territory in Hukaea since the 1920s before it was designated as a conservation area. The Hukaea region is included in the Rawa Aopa Watumohai National Park area, one of Indonesia's oldest national parks.

The Hukaea region is in the Traditional Zone of the Rawa Aopa Watumohai National Park. The traditional zone is part of a national park, which, because of its history, can be utilized because it depends on natural resources (Ministry of Forestry Regulation No / 2006). Local communities are given the authority to use the resources in the zone according to the rules and ecological knowledge they have (traditional ecological knowledge) (HS Sulistyono et al., 2014). The area management model in Rawa Aopa Watumohai National Park also involves indigenous peoples by recognizing and applying the local wisdom of the Hukaea Laea peoples in forest management, animal protection, management of arable land, and utilization of natural resources (Jabalnur & Intan, 2017).

The concept of ecosystem services is fundamental to seeing the benefits humans get from ecosystems. Sense of place is a form of an intangible cultural ecosystem service. One of the challenges is integrating a sense of place in the framework of ecosystem services related to landscape features so that later, they can contribute to policies for maintaining ecosystem services (Wartmann & Purves, 2018). A research opportunity on sense of place is how sense of place can influence pro-environmental behavior (Masterson et al., 2017). The existence of place attachment has a significant relationship to perceptions, attitudes, and ecologically responsible behavior towards heritage forests. Cultural ties are an important element for citizen awareness regarding forest conservation (Cheung & Hui, 2018).

This research aims to explore the sense of place aspects of vernacular settlements of indigenous peoples living in conservation areas. The objectives of this research are

1. To identify sense of place in Hukaea Laea Traditional Village
2. To identify how they maintain sustainability of the traditional village and its environment,
3. To ascertain how the local peoples' sense of place in vernacular settlements contributes to environmental conservation.

The Hukaea Laea Traditional Village is the study location because it represents the lives of indigenous people living in vernacular settlements that blend with the natural environment: a conservation area.

Theoretical Framework

The development of a geographical view of the place was initially too positivistic in the 1950s and 1960s, where place was simply a physical location in space. Taking the starting point of humanistic and phenomenological traditions in geography, place refers to the locales where people find themselves, live, experience, interpret, understand, and find meaning (Peet, 1998 in Kaltenborn & Williams, 2002). Relph (1976) views the foundation of the concept of as place is called 'existential insidedness' to describe a deep sense of belonging and complete identity to a place. The three essential elements that make up the place component, according to Relph (1976), are physical settings, activities, and meaning. The meaning of place can be rooted in physical settings, objects, and activities resulting from human intention and experience. As social beings and individuals, people actualize their character in a public open space of two forms, personal space, and territory, where this territory is influenced by economic and cultural factors (Hantono & Pramitasari, 2018). A place that is formed from physical form, activity, and meaning will change along with changes in activity in that place (Indraswara et al., 2022).

Agnew (1987) in Cresswell (2004) has described three fundamental aspects of a place as a 'meaningful location,' namely: Location, Local, Sense of place. In addition to having a location and a material, visual form, a place must have a relationship with humans and the human capacity to produce and consume meaning. By 'sense of place' Agnew stated that people have a subjective and emotional attachment to that place.

Based on Hernandez et al. (2021), topophilia, rootedness, place dependency, place identity, urban identity, place attachment, sense of place, sense of community, or community attachment are various concepts to characterize the emotional bond between humans and places. Sense of place is a holistic concept of blending both physical (environment) and personal/social interactions in that place (Shamai & Ilatov, 2005). Physical (environmental) is based on sensitivity to the uniqueness of nature, scenery, climate, geology, environmental settings, and the diversity of biodiversity. Meanwhile, personal/social interactions are related to interactions between family, friends, traditions, memories with the people in that place, and culture. Based on the description above, it can be defined that sense of place is a basic concept of belonging or attachment (emotional and functional) that describes the human relationship (physical and social) with a place as a result of the meaning attached to that place whose depth is made possible by accumulated experience within a certain time in that place.

Traditional villages have local wisdom to preserve the natural environment. The system of culture and local wisdom adopted by vernacular communities can determine the sustainability of their vernacular settlements (Solikhah, 2020). Vernacular settlements result from hereditary humans optimizing the use of materials, construction techniques, and climate considerations (Anna-Maria, 2009). The study of vernacular settlements passed down from generation to generation is very important because it is centered on people and life woven with the dynamics of life. This is revealed in the ecological, economic, social, and spatial dimensions of local communities with their resilience (Ozorhon & Ozorhon, 2021). This is manifested in vernacular architectural works in the traditional village. Vernacular architecture is influenced by geography, available materials, climate, traditions, and culture through which knowledge is transmitted and enriched from one generation to the next (Pardo, 2023).

Meanings of architectural spaces in vernacular dwellings and settlements can be maintained even though they transform due to modernization and shifts in lifestyle because they are oriented to the locality inherited from their ancestors (Manurung et al., 2022). This research uses this basic theory to identify the sense of place in the context of vernacular settlements. The Physical setting, activities and meaning are aspects to explore and identify the sense of place in the Hukaea Laea Traditional Village which contributes to environmental conservation.

Literature Review

Sense of place includes interactions between people (including across generations) through nature as part of the 'good life'. This is included in the 'cultural services' part of Ecosystem Service classifications (Abdurrahim et al., 2023) which provides material benefits such as food and income as well as non-material benefits such as mental health, comfort, security (Benessaiah & Chan, 2023), and values. traditional beliefs (Cheung & Hui, 2018). Many previous studies have discussed the sense of place in areas with history. According to Rembulan et al. (2023), the value of sense of place is not only about material and non-material components but also as networks between actors that were involved. As Lesmana et al. (2021) say sense of place can be shaped by physical, social, and cultural factors. Nature as a space of social integration which is the basis for human relationships (Milstein et al., 2011) is not only rooted in attachment to the physical environment but also in personal experiences felt in that space (Zeng & Deal, 2023). Community social relations that produce shared memories can stimulate people's attachment to their environment and provide awareness to create a sustainable environments (Pramitasari & Minami, 2006).

Physical space reflects spatial behavior that regulates the relationship between humans and their environment (Kaya, 2020) which has meaning (Khan, 2015) and has the function of maintaining historical values (Kusumowidagdo et al., 2023; Rong & Bahaiddin, 2023). Commonplace features of the landscape—roads, fields and boundaries are an important part of the social and cultural landscape heritage which is given meaning through intangible heritage, customs, memories, naming, rituals, and performances (Whyte, 2015).

Dameria et al., (2022) who conducted research on the relationship between sense of place and conservation behaviour in Semarang Old Town, stated that the context of place is key when discussing sense of place. Research conducted by Yuliani et al. (2022). Yuliani et al. in forest areas in Sulawesi has found that communities value the forest as part of their environment in terms of identity, ancestral heritage, sense of place, and spiritual values. According to Gobattoni et al. (2015), a strong community sense of place can ensure and preserve its environmental ecosystem.

Senses of place is very important for regional planning, especially areas that have a history of development (Nugroho & Zhang, 2022). According to Indraswara et al. (2023), the local and traditional nuances of villages need to be maintained for future generations. To maintain a sense of place in historic villages and environmental conservation requires the support of the local communities (Lane et al., 2008), related figures and the recovery of activities that are consolidated in the community memory (Indraswara et al., 2023). An opportunity to explore the sense of place in a vernacular settlement located in a conservation area is interesting because conservation locations have restrictions and rules for local people to utilize their environment. However, they still survive to live there because of the historical value of the place.

Research Method

This research uses an exploratory descriptive method. Observations, interviews, photo elicitation, open-ended questionnaires, and literature on the Hukaea Laea Traditional Village obtained data. The focus of observation in the exploration of the sense of place of the Hukaea Laea indigenous community is the landscape, social conditions, economy, culture, and local wisdom which are studied in physical settings, activities and meaning.

Information-gathering process involved 27 participants consisting of 5 informants for interviews and photo elicitation and 22 respondents who were given an open-ended questionnaire. Interviews were conducted with five participants, consisting of two village officials, 1 villager who is a partner of the national park, 2 female villagers. All the participants are the Hukaea people and traditional village officials. In selecting participants, a side purposive technique was used which was adapted to the research objectives. Questions asked of the participants included (a) the places where they carry out their activities and their dependence on these places; (b) the places that are most important to them; (c) the meaning of these places for them.

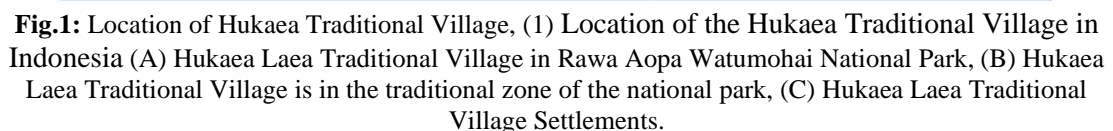
Photo elicitation effectively complement information from traditional interviews, as it captures first-hand vignettes of social life and encourages the direct involvement of informants in interpreting places and their daily practices. This generate information and meaning that may not be revealed in non-visual methods (Alam et al., 2018). The photo elicitation technique was carried out by informants sharing pictures and telling stories about important places in or around their environment (Stedman et al., 2004; Stewart et al., 2004). In this study, photos were obtained from the informants and the observations.

In the study of human attachment to places, the photographic approach has several advantages, among others, photos can convey a variety of meanings because they represent many things and photos can be a source of reference and focus of interviews. A photographic approach reveals the complex relationship between ecological and socio-cultural factors in engagement studies (Stedman et al., 2004). In the study of places, using a photo elicitation approach makes sense, because informants can articulate why places are important and meaningful (Beckley et al., 2007).

The data analysis steps are as follows: transcribing the findings verbatim; checking data, taking notes and first stage coding process; Second phase coding; make constant comparisons; confirm research findings with participants; and discussing research findings with the research team. In the coding process, there is a combination of theory and field data (Rembulan & Kusumowidagdo, 2022).

Data were analyzed spatially in three scopes: the Hukaea Laea Traditional Village and the conservation forest area of Rawa Aopa Watumohai National Park (macro scope), Hukaea Laea vernacular settlements (meso scope), dwellings and the surrounding environment (micro scope) and presented through digital location mapping.

Figure 1 shows the location of the Hukaea Traditional Village, which is in the Rawa Aopa Watumohai National Park conservation area, which is in the traditional zone . The location taken was the Hukaea Traditional Village in Watu-Watu Hamlet, Lantari Jaya District, Bombana Regency, South East Sulawesi, Indonesia. The designation of the Hukaea area as a forest area with the function of a national park was accompanied by efforts to marginalize the Moronene Hukaea Laea indigenous people through the telik sandi operation 'sapu jagad' by eviction of the area due to its presence in a conservation area. Which took place in 1997, 1999, 2000 and ended in 2022. The Hukaea Laea Indigenous People continued to survive and strive to defend their ancestral lands until 2015 Bombana Regency Regional Regulation No. 4 of 2015 was issued concerning recognition, protection, and empowerment of the Moronene Hukaea Laea indigenous people in Bombana District (Safiuddin, 2018;Yaqub et al., 2021). The Hukaea Laea Indigenous People who have received recognition as a customary law community through the Bombana Regency Regional Regulation No. 4 of 10 but whose customary territory has the status of a national park area have not automatically received their rights to customary territory including the right to manage and use natural resources, their customary rights are still limited by regulations that apply because of its presence in the National Park area (Safiuddin, 2018a;Sulaiman et al., 2021). Land ownership and an emotional connection to the surrounding environment are very important to maintain village sustainability (Prayitno et al., 2019).



Findings and Discussion

The results of interviews and photo elicitations were analyzed and supported by literature related to the Hukaea Traditional Village. Forests are an integral part of the indigenous peoples of Hukaea Lae in their daily lives. In Figure 2 below is the result of photo elicitation with the informants.

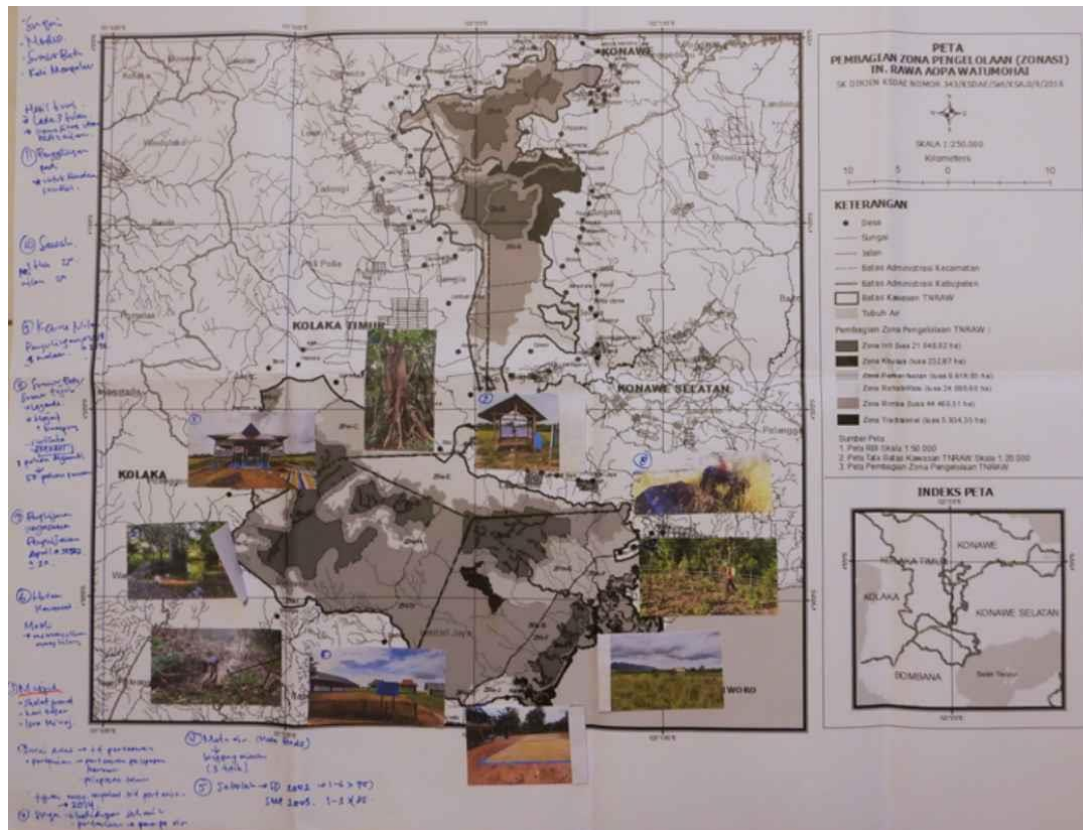


Fig. 2: Photo Elicitation of Hukaea Laea Traditonal Village
Source: Field Data, 2022

From the results of data exploration from observation, interview, photo elicitation, open-ended questionnaires, and literature there were 17 important locations mentioned by participants. These 17 locations can be seen in Table 1. These 17 locations were also discovered by researchers when conducting observations. However, in several locations the researchers did not encounter community activity due to limited time when conducting observations in the Hukaea Laea Traditional Village. Through literature, researchers found several important locations, especially from documents relating to traditional rituals, culture, local wisdom, customary law, architecture and conservation in the Hukaea Laea Traditional Village. Furthermore, the 17 locations were categorized based on the proximity of their scope resulting in 3 scopes including: (1) Hukaea Traditional Village and the Rawa Aopa Watumohai National Park observation forest area (macro scope); (2) Hukaea Laea vernacular settlement (Meso Scope); (3) Residential area and surrounding environment (Micro Scope).

Table 1: Important and Meaningful places in Hukaea Laea Traditional Village
Source: Research data collection, 2023

Scope	Place	observation	interview	photo elicitation	questionnaires	literature
forest area (macro)	Forest	•	•	•	•	•
	Savana	•	•	•	•	•
	Stone well		•	•	•	•
	Plantation area		•	•	•	
	Modus Hill		•	•	•	•
Hukaea Laea vernacular	Vernacular settlements	•	•	•		•
	River	•	•	•		

	Water spring	•	•	•		
	Rice fields	•	•	•		•
	Traditional hall complex	•	•	•	•	•
	Schoo	•	•	•		
	Mosque		•	•		
	Cemeter		•	•		
	Fields		•	•		
	Patchouli distillation		•	•		
Residential area (micro)	Dwelling	•	•	•	•	•
	Surrounding yards	•	•	•		•

Hukaea Laea Traditional Village and conservation forest area of Rawa Aopa Watumohai National Park (Macro Scope)



Fig. 3: Important and Meaningful Places on Forest Area (Macro Scope)

Source: Photo elicitation on macro scope, 2023

From the results of interviews and photo elicitation at the macro scope, there are five essential and meaningful location spots for the peoples of Hukaea Laea (Fig. 3). Location (1) is Forest. Photo (1) is a photo of a sacred forest in a conservation area. The existence of the forest is vital for the peoples of Hukaea Laea because it is part of their life values. Based on (Jabalnur et al., 2019), forest areas in Hukaea Laea are grouped through the application of customary law called *me'uma* (traditional agricultural law), which regulates land/forest grouping so that peoples know which forest areas can be managed and which must be protected. The area includes (a) the *Inalahipue* area (core forest/protected forest as a support for ecosystem life downstream), (b) the *Inalahi Popalia* area (sacred forest), (c) *Inombo* area (production forest for agriculture, plantations, and community needs), (d) *Leuno* area which is a "savanna field."

The Moronene community in Hukaea Laea manages the forest by developing local wisdom values that are influenced by factors of religion, livelihoods, migrant/encroacher communities, technology, natural wealth, and government. Customary institutions have a role in maintaining the sustainability of local wisdom values in forest management (Heryanti, 2021). Customary institutions have a role in customary arrangements, especially regarding sanctions against violations of ecological management in the Hukaea region (Hafid et al., 2020). Strengthening the role of Indigenous Institutions through the preservation of knowledge in

maintaining the continuity of the Moronene Hukaea Laea Indigenous people by routinely carrying out traditions handed down from generation to generation, namely: *mewusosoi* (ceremony of releasing the harvest and welcoming the year of planting), *mo'oli* (asking permission from supernatural forest guardians/*ntiwonua*, before land clearing, and *montewehi* (village purification ceremony) (Heryanti et al., 2020).

The *mowuwusoi* ritual is an expression of joy and gratitude for the successful harvest of the planting season that year, which is carried out routinely every year. The *mowuwusoi* ritual contains social, entertainment, religious, and ecological functions (Afriana S et al., 2019). The Moronene people in Hukaea Village have a very high emotional attachment to their ancestors, and they believe that the sangia, which is a representation of their ancestors, also becomes one of the determinants of the success of their endeavors. This is represented through the Meoli ritual which is intended to request permission to clear land when planting crops (Hastuti, 2017). In the tradition of the Moronene Hukaea Laea Customary Law Community, it is known as the mo'ooli ritual which is carried out when you are going to utilize a certain forest area within the customary forest for both personal and group needs, according to custom you must first communicate with Nteiwonua (a supernatural being who controls, guards and controls forest area) to request permission to carry out needs in the forest (Safiuddin, 2018b). The peculiarities of landscape characters can contribute to the sense of place. This can be explored through the language, color, and texture of the landscape, which reflect place names and vernacular architecture as unique landscape characters, which are very important in contributing to a sense of place and sense of belonging (Rippon, 2013).

The Moronene tribe uses various kinds of plants for their survival. The interaction of the Hukaea Laea people with the natural surroundings provides wisdom in managing natural resources. Research conducted by Setiawan & Qiptiyah (2014) identified 124 plant species used by the Hukaea Laea indigenous people, 68 species for food sources, 6 species for medicinal purposes and 10 species for customary purposes. To maintain the balance of the ecosystem, there are cultural products of the Moronene tribe, namely *Totongano kadadi* and *dulele melaa* in the form of folk songs and disclosure of traditional institutions in the framework of enforcing deer conservation in the Hukaea Laea area of Rawa Aopa Watumohai National Park (Hastuti et al., 2021). In Rawa Aopa Watumohai National Park, to be precise around the Lanowulu-Langkowala savanna to the Hukaea Traditional Village, there is an endemic species of yellow-crested cockatoo whose existence is currently threatened due to poaching, savannah, and forest degradation due to encroachment activities (Putri, 2015).

Location (2) is a savanna. The condition of the landscape of Rawa Aopa Watumohai National Park is mainly a savanna ecosystem. To get to the Hukaea Laea Traditional Village, we need to pass through savanna fields with access problems, especially during the rainy season. Location (3) is a *Sumur Batu* (Stone Well). Sumur Batu is an essential place for the Hukaea Laea indigenous peoples because this place is a spring where mythologically, there is a story where seven angels descend. Location of (4) planting areas. The planting area is where the Hukaea Laea indigenous peoples collaborate with the Rawa Aopa Watumohai National Park Authority in conservation activities with reforestation. Several indigenous peoples of Hukaea Laea have become partners with the Rawa Aopa Watumohai National Park Authority in managing and protecting conservation areas. Location (5) is Modus Hill. Modus Hill is a savanna that has hilly contours. The name Modus stands for Moronene Dusun because of its location, which is connected to the Hukaea Traditional Village. Based on the results of interviews, the peoples of Hukaea Laea are active in Modus Hill for recreational activities because the scenery is stunning. Activities are usually carried out at seasonal times, for example, at the turn of the year. Apart from the Hukaea Laea indigenous peoples, Modus Hill is also frequently visited by the public.

Vernacular settlement of Hukaea Laea (Meso Scope)

On a meso scope, the locations to be analyzed include areas in the traditional zone area. In this traditional zone, there are vernacular settlements of the Hukaea Indigenous peoples and natural spots that support their daily lives. Locations of (6) is vernacular settlements of the

Hukaea Laea indigenous peoples. The Hukaea Laea Customary Settlement has a linear configuration following the village's main road pattern. The indigenous peoples of Hukaea Laea build their dwellings using local materials in the form of natural materials. Due to its presence in a forest area, the source of electricity in the Hukaea Laea traditional village is obtained from solar panels or generators/accumulators. Location (7) is a river. The river is a vital physical element for the daily activities of the Hukaea Laea indigenous peoples. The community is busy visiting the river in the morning and evening. Their activities are fetching water and, at the same time, for self-cleaning and washing activities. Location (8) is a spring. Not all dwellings in the Hukaea Laea settlement have a water source in the form of a well. Most people take water for their daily needs from this spring or a communal well. Location (9) is paddy fields. One of the livelihoods of the Hukaea Laea indigenous peoples is farming rice. They cultivate agricultural land on designated land in the traditional zone, where the community can cultivate and use it. At the end of the year, the Hukaea Laea indigenous peoples usually carry out the tradition of harvest parties and welcoming the new planting year. Location (10) Hukaea Laea Traditional Hall. The Hukaea Laea Traditional Hall is a traditional building complex built in 2014. This traditional hall is an essential building for the community because it is the center of all activities of the Hukaea Laea indigenous peoples. All customary activities are carried out at traditional hall, including cultural rituals and village meetings. Location (11) is the school. In the Traditional Village of Hukaea Laea, there are elementary and junior high schools where Hukaea Laea children receive formal education. Teachers from the school come from several members of the traditional village and from outside the Hukaea Traditional Village, so every day, they need to travel quite a distance to reach the Hukaea Laea Traditional Village. In addition to formal education, the next generation in Hukaea Laea also receives non-formal education where they learn about locality and customs from traditional village officials and the community. The noble values of their ancestors and how they live in harmony with the natural surroundings they learn in their daily lives.

Location (12) is the Mosque. Most of the people of the Hukaea Laea Traditional Village are Muslims. There is one mosque building that is used by the community for religious activities. Location (13) is the cemetery. The Hukaea Laea Traditional Village has several cemetery complexes around the settlement. The largest cemetery complex is to the south of the mosque, which is the cemetery of their ancestors. Location (14) of fields around settlements. Apart from farming, the Hukaea Laea Indigenous Peoples have a livelihood by growing crops, including patchouli, cashews, and tubers/vegetables for their daily needs. We encounter many cashew plantations when we start entering settlements, as well as patchouli plantations, which are usually located in fields near residential areas. Apart from rice, the indigenous peoples of Hukaea Laea also produce essential oil commodities from patchouli and cashew nut commodities. Patchouli plants ready to be harvested and dried are then distilled to be used as raw material for essential oils. The distillation process is carried out at Location (15) as a patchouli distillation site.

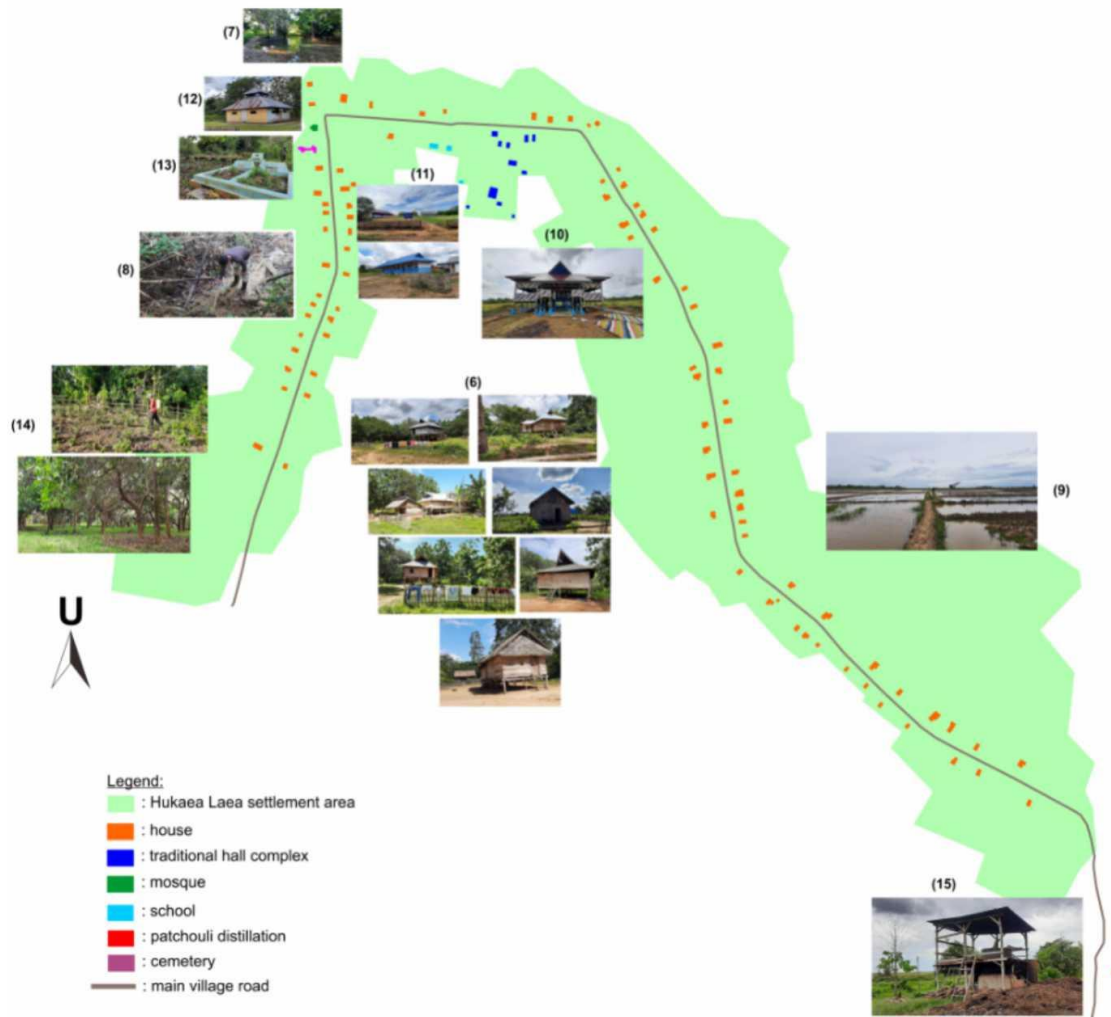


Fig. 4: Important and Meaningful Places on Vernacular Settlements Area (Meso Scope)

Source: Photo elicitation on meso scope, 2023

Dwellings and Their Surroundings (Micro Scope)

In the micro scope, the places that are considered important by the Hukaea Indigenous Peoples are dwellings (living houses) and yards around the dwellings. Figure (16) is a form of dwellings in the form of architecture in the Hukaea Laea Traditional Village. Most of the dwellings are in the form of stilts with the primary material using local materials, namely wood. The characteristics of the dwellings in the Moronene Hukaea Laea Traditional Village, when viewed from the spatial system, generally consist of two parts, namely the *botono* (core house: there is *luaran toka* (living room), *luaran petila* (living room), *suo* (bedroom)) and *dapura* (kitchen)) which have different floor heights (Hamasi et al., 2022). Apart from being used for residential (domestic) functions, peoples also use their houses for other functions. A residential house with a function as a place to live and a place to earn a living is called a productive house (Silas, 2000 in Kridarso & Iskandar, 2021). A productive house is an alternative to improve the family's economy (Sih et al., 2012). Figure 5a (16) is a form of utilization of the Hukaea Laea indigenous peoples in using their dwellings, not only for inhabiting activities but also for producing products to supplement their household income. One such product is a mat made from young *agel* obtained from the surrounding environment. Apart from that, they also made thatched roofs from dried reeds. They took advantage of the space on stilts for their roof-making activities. The roof is usually used for the roof of the house or for garden houses in the rice fields/fields. They make these products when they get orders or for their use.

Figure 5b (17) shows the use of the outside of the house around the dwelling, which is used by the community to support their household's economic activities. Their usual activity is making thatched roofs using the main ingredients of sago leaves and *nese* plants as a binding tool. Several houses in the Hukaea Laea traditional settlement have businesses and open stalls providing basic daily needs. Some stalls are attached to a dwelling unit, but some are separated from the dwelling unit. As the main commodity producers of rice and patchouli oil, some communities process their products around their dwellings, for example, for drying rice and patchouli plants. They also use the land around their dwellings to plant patchouli plants. They also use the space at the bottom of their stilt dwelling to store the commodities they produce before selling or for their use.

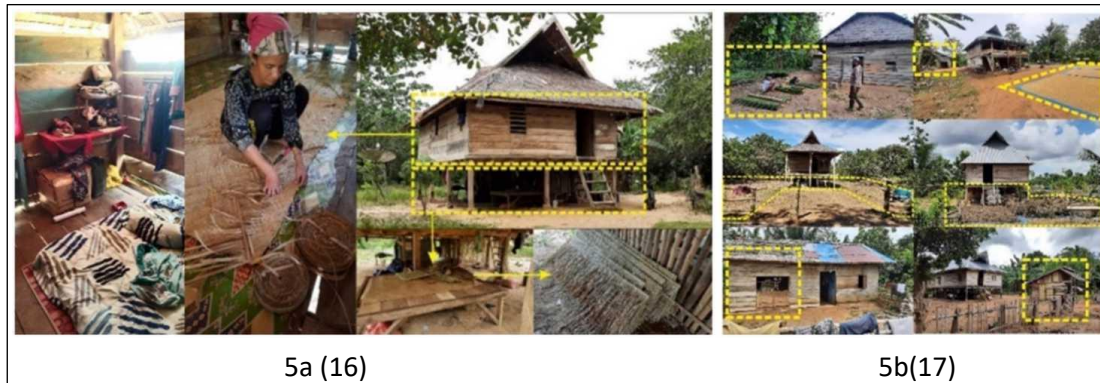


Fig. 5: Important and Meaningful Places on Dwelling and Surroundings (Micro Scope)
Source: Photo elicitation, 2023

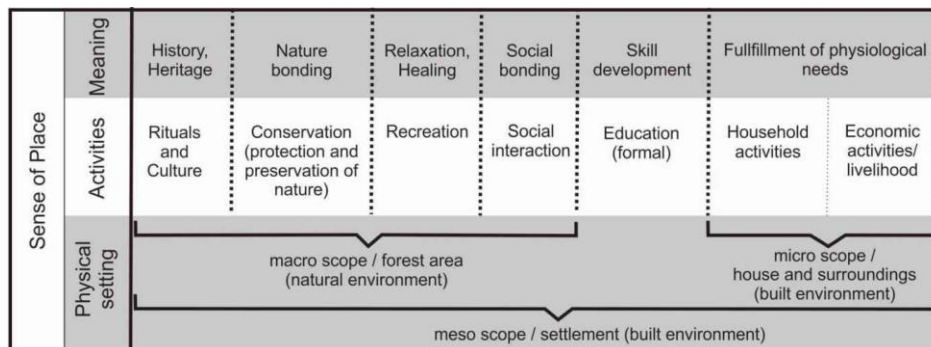
Based on the results of coding data obtained from observations, photo elicitation, interviews, open-ended questionnaires, and literature, the activities of the Hukaea Laea Traditional Village community are categorized into 7, namely: (1) cultural rituals; (2) Conservation (nature preservation & protection); (3) Recreational; (4) Social interaction; (5) Education (formal); (6) Household activities (domestic); (7) Economy. The relationship between the activities of the Hukaea Laea Indigenous community and the places they consider important is presented in table 2. The relationship between the activities of the Hukaea Laea Indigenous peoples and the places they consider important is presented in Table 2. Table 2 shows the correlation between activities and locations that are considered important by the community. Based on Chen et al., (2021) a sense of place arises when people feel attachment or personal relationships to certain areas where local knowledge and human relations are maintained meaningfully. Various activities carried out by the community in these places evoke a sense of attachment and have a certain meaning for each person. Based on the results of coding data obtained from observations, photo elicitation, interviews, open-ended questionnaires, and literature, the meaning of these places for the peoples of the Hukaea Laea Traditional Village is categorized into 6, namely: (1) history, heritage; (2) nature bonding; (3) relaxation, healing; (4) social bonding; (5) skills development; (6) fulfillment of physiological needs.

Table 2: Relations Between Activities and Places in The Traditional Village of Hukaea Laea
Source: Author, 2023

No	Activity	Forest area (macro scope)					Settlements (meso scope)										Dwellings & Surroundings (micro scope)	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
		Forest	Savana	Stone well	Plantation area	Modus Hill	Vernacular settlements	River	Water spring	Rice fields	Traditional hall complex	School	Mosque	Cemetery	Fields	Patchouli distillation	Dwelling	Surrounding yards
1	Cultural rituals	●	●	●	●	●	●				●		●	●				
2	Conservation (preservation & protection of nature)	●	●	●	●	●		●	●									
3	Recreation					●												
4	Social interaction	●		●	●		●	●			●		●	●				
5	Education (formal)										●	●						
6	Household activities (domestic)							●	●								●	
7	Activities related to the economy		●				●			●					●	●	●	●

Physical setting, activity, and meaning are three things that are correlated to each other in forming a sense of place. Figure 6 shows the interconnectedness of aspects of the physical environment, activities, and meanings that are mutually integrated in forming a sense of place in the Hukaea Laea Traditional Village. These three aspects cannot be separated. Activities related to rituals and culture have meant related to historical values and heritage. Conservation activities in the form of preservation and protection of nature have the meaning of nature's attachment between humans and their environment. Recreational activities are very close to relaxation and healing. Activities related to social interaction are a form of one's personal attachment to other people and their social environment.

Fig.
The



6:

Interrelationship of Aspects of the Physical Environment, Activities, and Meaning in Forming A Sense of Place in The Hukaea Laea Traditional Village.

Source: Author, 2023

These activities are mostly carried out in the natural environment's physical setting, a forest area (macro scope). Activities related to households and the economy have meant fulfilling human physiological needs. This activity is closely related to the physical environment of the built environment, which is at the micro scope, namely the dwelling and the surrounding environment. Other activities, namely those related to (formal) education, have meaning in developing individual skills. All the activities carried out by the peoples of the Hukaea Laea Traditional Village are inseparable from the physical setting in the form of the built environment and the natural environment in the settlements of the Hukaea Laea Traditional Village (meso scope).

Conclusions

Sense of place in the Hukaea Laea Traditional Village arises from the relationship between local people and the vernacular settlements located in the conservation areas. It is very strong because the land where they live is their ancestral heritage. They live the values of the ancestors for the resilience of their lives and environmental sustainability in conservation areas.

Sense of place in the Hukaea Laea Traditional Village vernacular settlement is formed from integrated aspects of the physical setting, activities, and meanings. The physical setting is formed from the natural environment and the built environment, which spatially can be categorized into three scopes, namely forest areas, which are the natural environment settings (macro scope); residential areas, which are the built environment and natural environment settings (meso scope), and residential areas which are built environment settings (macro scope). The macro scope is the scope of hukaea settlements with surrounding forests, including forests, savannas, rock wells, planting areas, and Modus Hill. On a macro level, it has the meaning of their attachment to their ancestors, which is represented by the existence of a sacred forest where they hold cultural rituals and social activities. In addition to this, in this macro scope, the Hukaea Laea Indigenous Peoples also have an essential role in conservation activities in nature preservation and protection. The Hukaea Laea peoples take advantage of natural beauty for recreational activities. In this macro scope, the Hukaea Laea Traditional Village community also carries out activities related to social interaction. In this scope, the physical setting in the form of the natural environment and the activities carried out evoke meaning for the community in the form of history, heritage, natural ties, social bonds, and relaxation/healing.

The physical setting in the form of the built environment and the natural environment (meso scope) is within the scope of the traditional zone based on the zoning of Rawa Aopa Watumohai National Park, where the community can cultivate the environment and utilize the land. This scope includes vernacular settlements, rivers, springs, rice fields, traditional halls, schools, mosques, tombs, fields, and patchouli distilleries. In this meso scope, the community uses residential areas and rice fields for various activities, including cultural rituals, conservation, social interaction, education, household (domestic), and economic activities. Educational activities carried out in this scope have meaning for improving individual skills. Furthermore, the micro scope is the built environment consisting of the dwelling and the surrounding yard. At the micro level, this has a very important meaning for the Hukaea Laea Indigenous peoples because it is the place where they carry out their daily activities. In this scope they carry out everyday household activities as well as activities that support their economy. This scope is closely related to fulfilling the physiological needs of individuals in society. The research results prove that sense of place is a form of ecosystem service for society in material and non-material form which is closely related to environmental conservation.

The strength of this research is that it uses various methods that can complement each other's findings. This article further strengthens that inheriting ancestral heritage values is very important in strengthening a sense of place which contributes to environmental sustainability. This research contributes to the study of sense of place in vernacular settlements located in conservation areas. Its existence in a conservation area provides a unique position because, on the one hand, there are functions of utilization and conservation in one location.

The weakness of this research is that it is limited to vernacular settlements, it can still be developed within the scope of rich biodiversity. Further research opportunities that can be continued from this research are the role of sense of place in generating pro-environmental behavior for environmental sustainability.

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