



Southeast Asian Vernacular Settlement and Its Architectural Transformation: Tenganan Pegeringsingan in Bali as a Case Study

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ABSTRACT

From the colonial era onward, Western observers have held romanticized notions of Southeast Asia as part of the East. As a consequence, Southeast Asian vernacular villages, possessing a strong sense of cultural identity and convenient accessibility, are currently transforming into tourist attractions. From an economic standpoint, tourism is beneficial, but it also has other effects, such as changing the village's architecture and landscape design. The purpose of this study is to shed light on the architectural and spatial changes that took place in Bali's Tenganan Pegeringsingan Village and how the locals interpret these developments. We use qualitative research methods such as archival analysis, building and architectural surveys, and qualitative interviews to study pre-change conditions, compare them to current conditions, and ascertain how the community accepts or rejects the changes that have taken place. Furthermore, the difficulties of preserving its identity will also be discussed. The study's findings describe the difficulties and resiliency tactics of villages with deep cultural ties in the face of external variables affecting their internal process of knowledge transfer. The research will conclude by outlining how a Southeast Asian traditional settlement has changed in the era of global capital, namely tourism, and what creative endeavours can fulfil its current and future needs without sacrificing its identity.

1. Introduction to The Concept of Vernacular Settlement

Researchers from diverse professions study architecture, particularly traditional communal buildings, in Southeast Asia to discover the meanings hidden inside. Anthropological research tries to chronicle and classify traditional dwellings and their many kinds of ornamentation in order to understand the spread of societal cultures across the world's two big cultural hubs, India and China

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(Schefold, Nas, & Domenig, Introduction, 2003). The impact of culture from different other sections and its absorption into local architecture in this area is also an intriguing field of investigation, including building processes, materials, and their alteration (Dumarcay, 1987) (Schefold, 2003). For indigenous cultures in Southeast Asia, structures are not simply physical entities, but living beings that reflect and influence social interactions and cultural practices. The idea is that the house is an essential aspect of social life and is constantly altered by the actions and experiences of its occupants (Waterson, 2014).

Architecture, being a product of human civilization, evolves with time. Many factors might impact its growth, including colonization, which affected the majority of places south of the equator. Knowledge from northern nations met with the Southern Region, influencing towns and architecture of the latter (Joseph, 2023). However, information from distant nations is not always instantly accepted, but undergoes modification, integration, and in some cases even demonstrates the endurance of local culture when it is rejected (Vita, 2023).

In addition to colonialism, the impacts of globalization also influence vernacular settlements when it creates new hybrid cultures that unite global and local traditions (King, 2004). In situations with flexible borders, King (2004) contends that space is not neutral but is affected by social, economic, and political influences. Today, dominating groups are frequently state forces with nationalist ideologies. Nationalism has a strong desire to integrate the many parts that make up its constituent elements, while simultaneously retaining the authority to reject those that are perceived to endanger its survival (Kusno, 2012). Therefore, state's authority may shape architectural forms and settlements that emerge and evolve within a limited number of people. The state of traditional settlements, which continues to evolve and symbolizes the various factors that create them, is always an intriguing research topic since it usually sparks interesting debate.

In Bali, there are hundreds of settlements built independently by traditional communities and not all have been successfully documented. Though describing and defining a settlement may appear straightforward, delving deeper into the subject requires more profound thought. (Suartika, 2013). Since the 1970s, the government of Bali, Indonesia has made various efforts to document the physical settings where daily, social, cultural, and economic activities of the traditional communities take place. This is to understand the cultural roots of buildings (physical buildings) on the island, which has been increasingly being over-run with tourism facilities. The aim of the government has been to seek local identity amidst the threat of rapid changes and transformations in life due to the globalization and commercialization processes. Despite the documentation works that were initiated by the government being continued by researchers, there is no conclusive view about the existence, process of change, and appropriate conservation strategies to define vernacular settlements in the era of globalization.

This study looks at the architectural metamorphosis that happens in traditional communities in Southeast Asia, where global forces meet local resilience, and how the presence of the state may be a tool that enhances and effects their survival today. Bali is a case in point.

1.1. General Concepts of Vernacular Settlement

Vernacular architecture, in general, is defined as an indigenous, 'primitive', folk, or popular building tradition, rooted in place, culture, and history, and built without the involvement of professional architects (Oliver, 1997) (Oliver, 2006) (Oliver, 2007) (Vellinga, 2024). Products categorized as vernacular are made by non-experts, constructed according to the availability and performance of materials, and formulated in response to the local environment and climate (Brown & Maudlin, 2012) (Oliver, 2006) (Alsayyad, 2004). In the discourse of architecture, 'vernacular' is a word borrowed from linguistics and has long been used to identify the local dialect or accent of a particular village, region, or community group (Oliver, 2007). Its most well-known interpretation in architecture is the exhibit and book "Architecture without Architects" (Rudofsky, 1964). However,

other researchers caution against using this term because the word 'local' is also influenced by geopolitical factors and a wide geographical area (Widiastuti, Sudrajat, & Gantini, 2023)

From this generally accepted conception, Marcel Vellinga compiles interrelated threads to make it easier for us to understand vernacular architecture (Vellinga, 2024). The first common thread sees the position of vernacular architecture as contrary to the general understanding of architecture because it is traditional, not innovative; communal, not individual; authentic, not artificial; humane, not pretentious; and more natural, not artificial. The second common thread is the emphasis on the production process of vernacular architecture, where the builders are often unknown because the building is a product of the community. Vellinga believes that the issue of authorship is what distinguishes vernacular architecture from what is generally understood as architecture (Vellinga, 2024).

The absence of authorship in the production process of vernacular architecture led to experts in this study to tend to separate it from architecture in general. Architectural writings in the 1940s, for example, considered buildings created by communal communities as mere spaces that provided shelter and not architecture. Moreover, vernacular architectural studies involve many issues outside of architectural elements which are actually closely related to the production of space. Several authors include discussions of elements of ethnography, material culture, geography, and history (Oliver, 2006) (Rapoport, 1969). Thus, vernacular studies are also an understanding of non-architectural elements. These non-architectural elements, however, contribute to the production and evolution of traditional buildings even though the focus is on studies of social cultural practices and rituals (Brown & Maudlin, 2012). The richness of the study, which is a combination of architectural and non-architectural matters, makes Oliver believe that vernacular architecture is a very rich source of learning, is complex, and expresses multiple meanings (Oliver, 2006) (Oliver, 2007).

The understanding of vernacular architecture, like architectural traditions themselves, is not static but continues to evolve. When modern architecture was reaching its saturation point at the end of the 1960s, vernacular architecture was used to criticize building works that prioritized global character and used the latest building materials and technologies associated with the future without paying attention to the local character and history of the place (Vellinga, 2024). In Indonesia, the character of architectural works developed by the community is built into architectural knowledge and used as a tool to stem architectural knowledge of the western international style architecture (Priyotomo, 2018) (Octavia, 2021). Recent literature also indicates that vernacular architecture is also influenced by outside conditions. For example, the influences of colonialism are internalized and reproduced as products of ordinary society (Speechley, 2024).

The development of vernacular architecture, in line with its efforts to be an antithesis to modern architecture, has many romantic aspects. People view this negatively, as it hinders the progression of life. Later studies looked at it in a more critical light. In the last two decades, the scope of the vernacular field has broadened to look more critically at the ideas of tradition, locality, and authenticity that underlie the concept and to investigate the ways in which vernacular architecture is produced, consumed, and appropriated, or serves as inspiration that legitimizes contemporary design (Alsayyad, 2004).

1.2. Authenticity, Transformation, and Commodification of Vernacular Settlements

Vernacular architecture is known for its authenticity. However, this can become problematic when it is operated across territorial, geographic, economic, political, and social boundaries, which gives rise to a tendency to assume that the cultural determinants that determine the shape of a building are fixed and belong to a particular cultural group (Brown & Maudlin, 2012). This quality forms an identity, namely a value and meaning, possessed by a certain group that is not similar to other communities. Simply put, identity often refers to the ways that individuals and groups distinguish themselves from others (Jenkins, 1996) (Fearon, 2020). In this case, identity can be used as a tool to

define 'us' and 'them'. For good purposes, identity can strengthen a sense of community and a sense of belonging to local culture. In the opposite case, identity can be a tool to exclude other groups that are seen as not belonging to a particular group (Jenkins, 1996). In this situation, vernacular architecture can be a selection tool for what is good and bad, as well as what is ours and theirs.

Other studies perceive identity as a process of change in the modern world, without neglecting tradition. This implies that the meaning and values that shape an identity are not static or located at a specific point in history. Both are processes that continue to undergo transformation, so they are not easy to define (Fearon, 2020). Identity, being a process, is not susceptible to fabrication (Correa, 1983). Any action bypasses the understanding of vernacular architecture processes or products produces and which produces identity that is only physical form, can be dangerous. As an entity that is in continuously evolving, vernacular architecture is always incomplete, transient, and in flux (Brown & Maudlin, 2012). These three main characteristics set vernacular architecture apart from modern architecture, which is perceived as a complete and fixed-finish product.

The unique value and identity possessed by vernacular architecture is currently being used as a means of tourism development (Palupi, Hardilla, & Nugroho, 2021) (Petrevska & Nestoroska, 2023). Today tourism is an activity that involves large capital. In an effort to attract more tourists, the traditional and vernacular qualities of a community group are seen as commodities and can be manufactured (Alsayyad, 2001). Professional architects now produce spaces with a traditional or vernacular character to attract tourists. As a result, understanding the vernacular concept becomes, at the best, superficial and unclear.

Studies are necessary to provide empirical evidence to overcome the inconclusiveness of our understanding of vernacular settlements. This research aims to provide empirical evidence to sharpen our understanding of the meaning of vernacular settlements as currently understood, especially in relation to global issues, considering that this concept continues to develop. The example of Tenganan Pegeringsingan Traditional Village settlement in Bali is an appropriate case study.

Since colonial times, many scholars have carried out research in Tenganan village. The research was pioneered by V.E. Korn, a customary law researcher from the Netherlands, and continued by today's researchers. There is considerable research related to the physical built environment (Kumurur & Damayanti, 2009) (Permana, Basuki, & Sari, 2010) (Sumunar, Suparmini, & Setyawati, 2017) (Karidewi, Ritohardoyo, & Santosa, 2012) (Adnyana, Kardinal, & Sudharsana, 2021). However, most of them focus on identification and documentation or comparative study with other villages, while research that aims to build understanding and contribute to vernacular architecture that can be used globally has never been carried out.

1.3. Research Questions

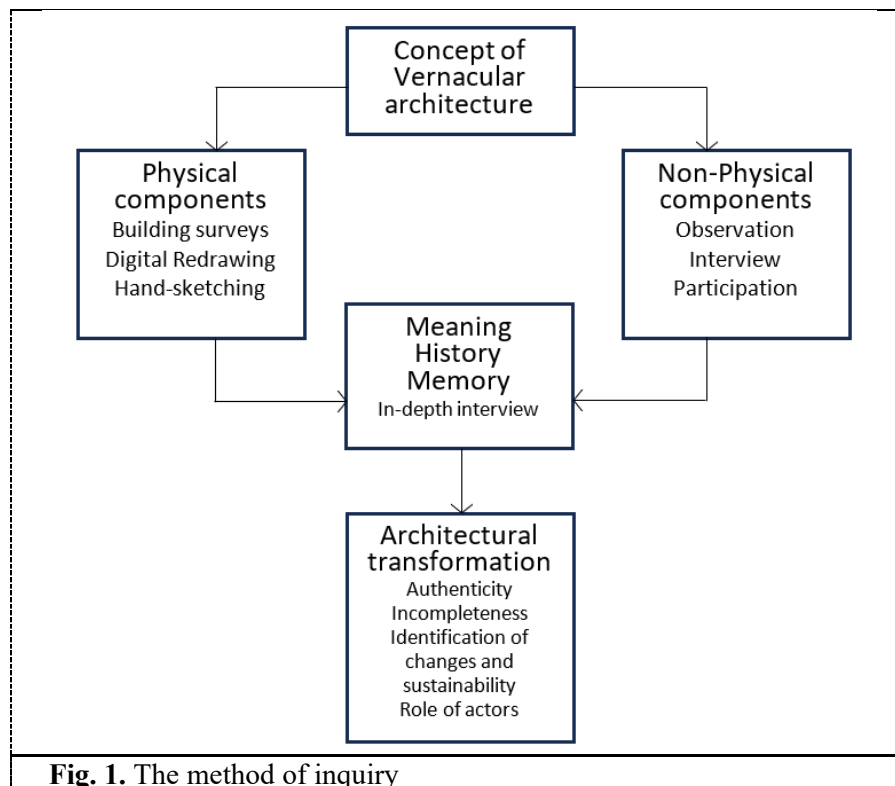
In this paper, the proposed research questions specific to Tenganan village are:

- a. How was the vernacular settlement established?
- b. What is the scale of change that has occurred? And who are the actors involved in the transformation process?
- c. What is the concept of managing change so that the authenticity can be maintained?

2. Methodology

Various field research activities were carried out over a period of approximately two months to explore the values contained in Tenganan, including architectural and community transformations and problems faced today. The ethnographic method is the basic reference for conducting this research. In-depth interviews were conducted with three local traditional figures from three different generations. This is intended to explore a more complete picture of the past, present, and hopes for the future from various perspectives. Changes and settlement sustainability were observed through building surveys.

Building surveys were conducted by documenting and observations using aerial mapping, measurements of buildings and village spaces, and documentation through photographs. The measurement data was used to produce digital drawings which were later redrawn and presented in a form that is technically accurate but which also conveys the handmade character of the architecture. Data from interviews and building surveys were compared and analyzed together with secondary data obtained from books and publications about Tenganan Village. Data analysis was carried out by organizing and analysing information into four themes, namely: authenticity, incompleteness, change and sustainability, as well as the actors involved in the settlement transformation process.



3. Results

Transformation is a process that shapes identity and occurs in all settlements including traditional dwellings that are often perceived as containing inert values and meanings. Data gathered during the fieldwork shows that Tenganan Pegeringsingan Village has experienced moderate changes in general, but, looking in more detail, bigger changes have actually occurred. However, these changes do not influence the general identity of the village because they happen mostly at the household level. This situation supports the view that this vernacular settlement is in a state of incompleteness and transformation is continues to occur over time. The following section discusses how the village maintain and manage change.

3.1. The History of Tenganan Pegeringsingan Traditional Village

Tenganan Pegeringsingan Village is located in Karangasem Regency in the eastern part of Bali Province, about two hours by car from Denpasar, the provincial capital. Today, the village is reached via a narrow but good road that passes through the neighboring village, Pasedahan. For hundreds of years, the secluded position of the village, protected it from influences from the outside world and at the same time allowed the village community to develop their own modes of development.

The village has various versions of their history that are not related to each other, so it looks as if it does not have a conclusive narrative. Some of the narratives have evidence in the form of artifacts, while others are practiced in customary rituals. Therefore, each story has its own validity. One story tells us that the people who now inhabit the village originally lived on the coast and then moved upstream. This moving process is called '*Ngatengahan*' in the local language, which is thought to be the origin of the name Tenganan. An inscription from Ujung Beach, dating back to 1040 AD, provides evidence for this first story. The word '*Tranganan*' appears in the inscription, suggesting a connection to the Tenganan residents. A second story states that the first settlement was at Candi Dasa Beach, which existed around the 13th–14th centuries AD. This location has fresh water sources, even though it is close to the sea. As a result of continued disasters, including wild fish attacks, residents moved towards safer areas, namely their residential locations today. Although both are quite logical, there is no supporting evidence other than stories passed down from generation to generation to support clearly understand the location and the shape of the village territory.

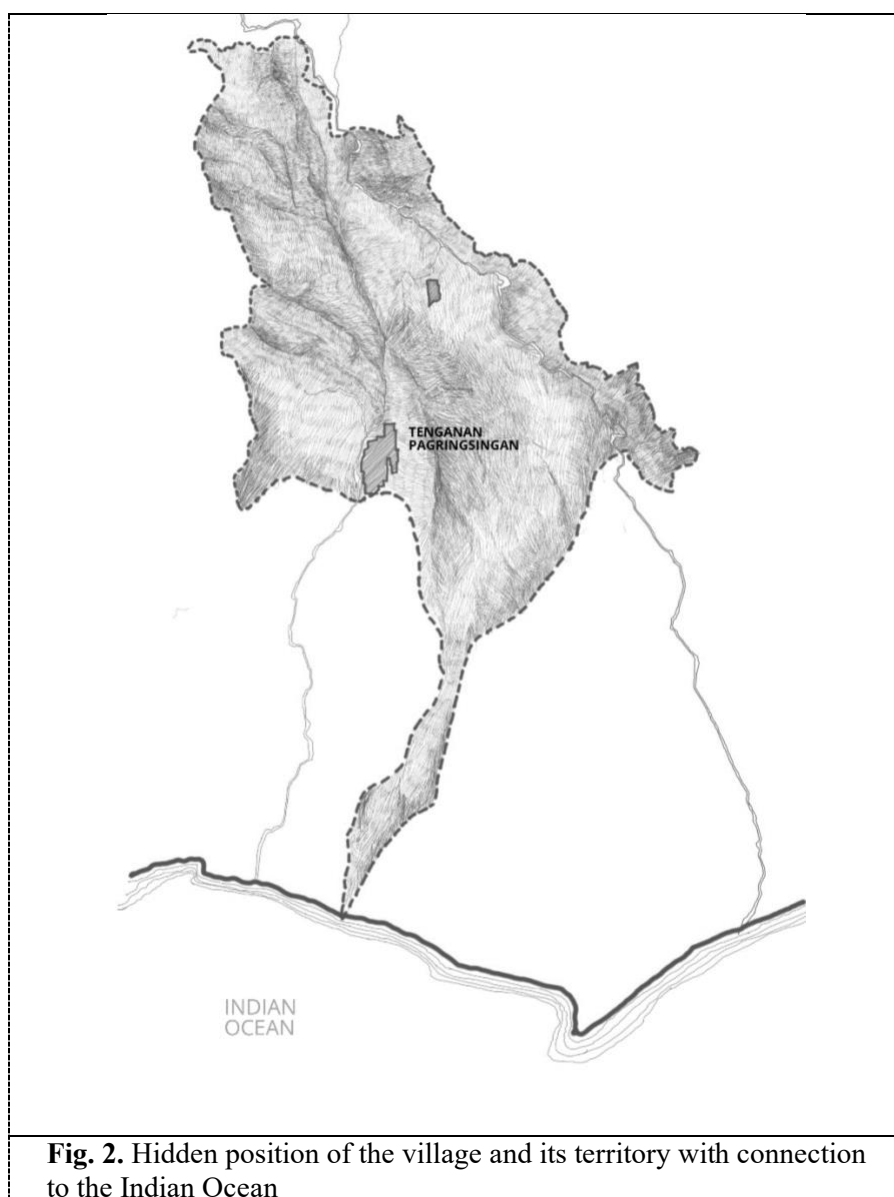


Fig. 2. Hidden position of the village and its territory with connection to the Indian Ocean

Other versions of the origin story of Tenganan contain elements of mythology and history. It is said that a Balinese king lost his favorite horse. The soldiers were deployed to search for it until it was found. A group of brave soldiers from Teges Village near Bedahulu, the center of the ancient Balinese

kingdom, found the dead horse after a long search. The king decided to reward these warriors with a plot of land as vast as the smell of the dead horse. The clever leader of the soldiers cut the horse's corpse into several pieces and scattered them, allowing the smell to spread across a large area of land in several directions. The horse's pieces gradually turned into stone, that today make sacred boundaries far beyond the physical village settlement.

An informant also recounted another version of Bedahulu's origin. Once upon a time, under the leadership of King Sri Ksari Warmadewa, people with heterogeneous beliefs inhabited Bali. There were sharp differences of opinion leading to disputes between one sect and another. This caused the king invite a mediator, Mpu Kuturan in an effort to unite and reconcile existing differences. A meeting of three groups —the king, representatives of the sects, and Mpu Kuturan as mediator—decided on Shivaism as a belief that would unite everyone. The Lord Indra sect did not agree and chose to leave the kingdom. This group is believed to be the ancestors of the Tenganan people. Various rituals in Tenganan Pegringsingan still uphold this strong belief in Lord Indra today.

Apart from the stories told from generation to generation, researchers with modern approaches also explore the village stories. According to a village leader, in the 1970s, a foreign researcher came to Tenganan because she was curious about the fact that the population had not increased for hundreds of years due to endogamous marriage. DNA test results revealed similar genes between Tenganan Village residents and those from an area in eastern India. The assumption that there is a connection between these two regions, which are far apart and located in different countries, is getting stronger because the people from both places use the same fabric weaving technique, namely double-*ikat* (*ikat*: dyeing technique), and the weaving results have similar patterns. In Tenganan, this woven cloth is believed to repel evil and all kinds of diseases, which is the origin of the word 'Geringsing', which literally means 'not sick'. Also significant are the rituals that relate to their origin stories in which where the *Geringsing* cloths are one of the main elements.

From all the stories, there appears to be a pattern that the people of Tenganan Pegeringsingan were immigrants from other regions and possibly from outside the island and even from India. This shows that there was migration that covered quite large areas before population groups settled down in one place and developed their own culture.

3.2. Residents and Village Government

Dutch researchers dubbed Tenganan Pegeringsingan the 'Village Republic' due to its unique traditional community structure (Korn, 1933). The village community organizes its citizens based on marital status and origins. There are three main groups that constitute the traditional administrative structure of the village. *Krama Desa* group consists of all married couples of Tenganan Pegeringsingan, who are both native Tenganan residents. These groups are the backbone for maintaining all village policies. The second group is called *Krama Gumi Pulangan* who are married couples, but in which the woman is not a native Tenganan Pegeringsingan resident. The rights and obligations of this krama are different from those of *Krama Desa*. The third is *Krama Gumi* or residents who come from outside the village but have long been allowed to live in the village area of Banjar Pande, which is the easternmost outer side of the village. In addition to immigrants, *krama gumi* can also refer to residents who have caused harm to the village, leading to their exclusion from living in the main area.

Krama Desa organizes itself into several groups. The position is regulated according to the length of marriage, where the members who are newly married sits in the lowest position called "*pengeluduan*", while the oldest is "*luanan*". The position of the '*luanan*' group is in the *Bale Agung* (big pavilion) which is closest to the direction of the mountain (upstream of the river), while the others are arranged successively sitting in the opposite toward the direction away from the mountain (downstream). Also of note is that members of the *Krama Desa* include both husband and wife because of gender equality.

Equal distribution of welfare is one of the characteristics of a communal society. To provide financial support for all residents and ritual activities, the village has large areas of rice fields and farms. The income or yields, according to sources, are sufficient for individual family's monthly needs without them having to work in the rice fields. The fields and plantations are tended by people outside the village using a profit-sharing system.

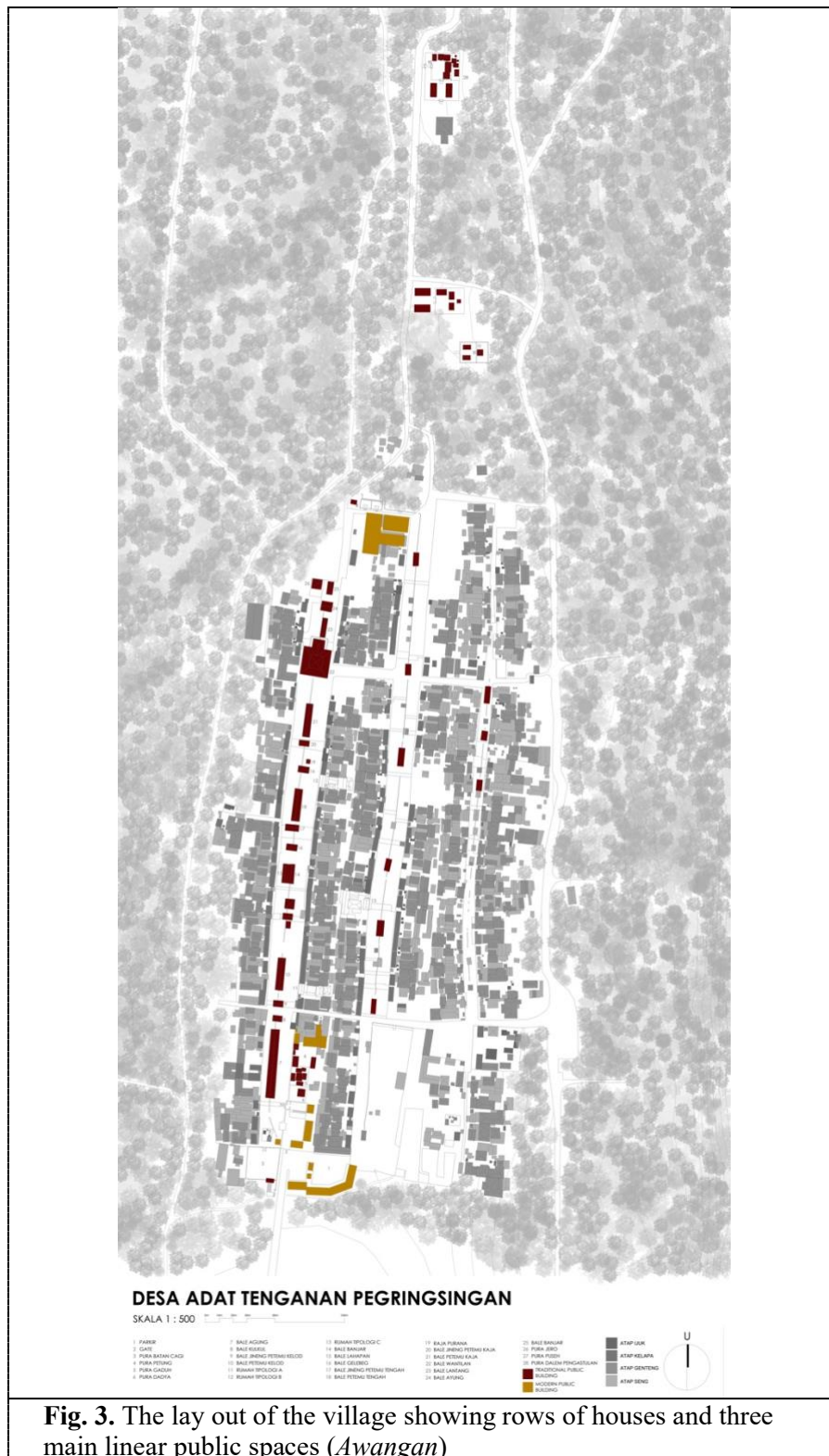
The people who live in Tenganan Pegeringsingan Village believe that their existence is a duty to maintain the values passed on from their ancestors, especially worshipping Lord Indra. Even though their village's history has so many variations and its cultural roots are almost impossible for ordinary people to understand, they have inherited complex rituals from which they build the values they strive for together. The rituals carried out throughout the year aim to serve the gods, who are believed to give life and strength, and protect the village area from invisible disturbances. The continuity of these ritual's is one of the keys to Tenganan Pegeringsingan's success in maintaining its vernacular identity.

3.3. Settlement of Tenganan Pegeringsingan Village

Each vernacular settlement occupies a specific location, typically shielded from natural disasters and conflicts with other groups. The community constructs its buildings in accordance with their needs and building skills, as well as material and human resource availability. This section discusses the physical condition of the built environment in Tenganan Pegeringsingan Village, as well as its changes. To understand change, it is critical to compare today's conditions with previous ones. Interviews with village figures and V.E. Korn's writings provided a detailed account of past conditions. V.E. Korn penned his description in 1933, during a period when the government remained traditional and uninfluenced by formal institutions.

3.3.1. Macro Space Structure and Physical Form of Public Buildings

Geographical conditions and the community's social structure are two important elements in the physical manifestation of Tenganan Pegeringsingan Village. The upstream direction of the river, which also leads to the mountain, is a natural element. The hills on the left and right of the settlement are natural boundaries for a central area of flat land extending in the direction of the river flow. The upstream (mountainward) direction, is marked by an important holy place, while the village cemetery is located in the opposite direction. Between these two elements, the residents arrange their houses in a compound, with the dwellings facing three parallel linear open spaces (*awangan*) which is function as public spaces as well as "streets." The village is primarily and publicly accessible from the south, which shares a border with Pasedahan Village.



Three *awangan* running parallel from north to south, from mountain to sea, form the backbone of village planning. Two east-west transverse lanes connect the three *awangan*. These three *awangan* also mark the three *banjars* (housing groups) that form the social structure of the village, namely Banjar Kauh, which is the westernmost position; Banjar Tengah, which is in the middle; and Banjar Pande, which is the easternmost position. On both sides of each *awangan*, there are rows of dwellings in plots of more or less the same size.

The dwellings of the residents who make up the *Krama Desa* are located along the *awangans* of Banjar Kauh (western banjar) and Banjar Tengah (middle banjar). The *awangan* of Banjar Kauh is the largest as well as the centre of sacred and secular activities where sacred and the most important public buildings are located. The southern most building, known as *Bale Agung* (the Great Pavilion) is the centre of ritual and social activities that take place in the village. This largest structure is considered sacred and also houses ancient artifacts belonging to the village and where offerings are laid out on holy days. It is immediately visible as soon as we pass through the main gate.

Along this main *awangan* there are other important village buildings, such as: *Bale Kulkul* (bell tower) used as a means of communication, where the ‘bells’_ hollowed out wooden logs- are beaten every morning and on other significant occasions. There are also three *Bale Patemu*, each equipped with a storage room. These *bales* are used as meeting places for three youth groups. Other community and sacred buildings along this main *awangan* are the village granary; a small temple; and *Bale Banjar*. The other two *awangans* have several public buildings that are smaller in size and more secular in function.



Fig. 4. Some traditional buildings use natural materials and are located in the *awangan*

Architecturally, all public buildings in this area are open pavilions without walls. The *Bale Agung* building is a long structure with two rows of parallel wooden posts. There are 14 pairs of posts. The wooden structure sits on a raised platform built on a foundation of a river stone. The long-hipped roof of the building is made from palm fibre (black palm fibre) taken from the village forest. At first glance, it appears to have slender posts supported by a heavy river stone foundation that holds up a very heavy roof. However, the slender posts are tied together as *bale* structure, which functions as a seat during village meetings. This wooden structural system makes it flexible against earthquakes, even though the building looks heavy.

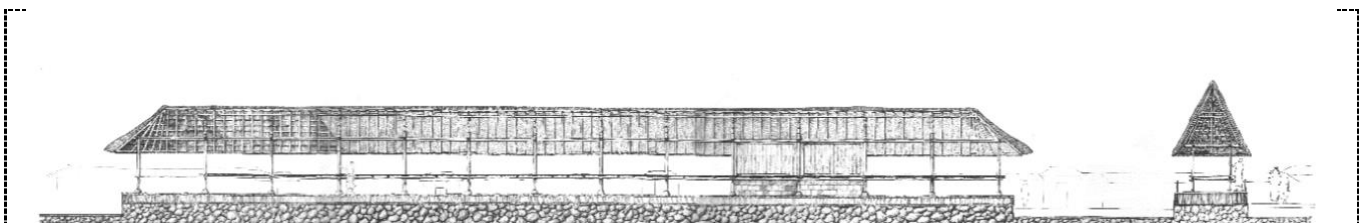


Fig. 5. The Long *Bale Agung* as a meeting place for all married men



Fig. 6. Wood as main material of Bale Agung and covered by black palm fibre. *Bale Agung* is a place for meeting every night and also for celebrating village ceremonies.

Other buildings have quiet similar form, long structures laid following upstream and downstream direction, built with naturally available materials and resist natural disasters. All public buildings were constructed by the villagers themselves.

The village obtained building materials from nearby rivers. Wood, palm fibre, reeds, and coconut leaves were obtained from village-owned forests in the past. The use of those materials is regulated by a regulation that is mutually consented to. Any wood cut must be unproductive or dead. The application of materials, structural patterns, and similar building shapes gives the impression of unity and a strong identity to the cultural and architectural character of the village. These materials also differentiate Tenganan Pegeringsingan from other villages in the surrounding area. The rules for using the sources ensure the sustainability of the next generation.

Relatively new building, a *wantilan*, was added in the 1950s. It has a slightly different shape, where the plan is not rectangular but square. The different shape indicates that the building is constructed not for staging village's rituals but to fulfill secular functions such as receiving visiting tourists, a multi-purpose room where the local government introduces and carries out various programs, including those related to health and education, and the most important thing, the practice of cockfighting. Regarding its shape, it is said to have been inspired by a similar building found at Taman Ayun Temple in a different regency. It is possible that in the past, there were residents who liked cockfighting and playing at the temple and then brought up the idea of building similar facilities in the village.

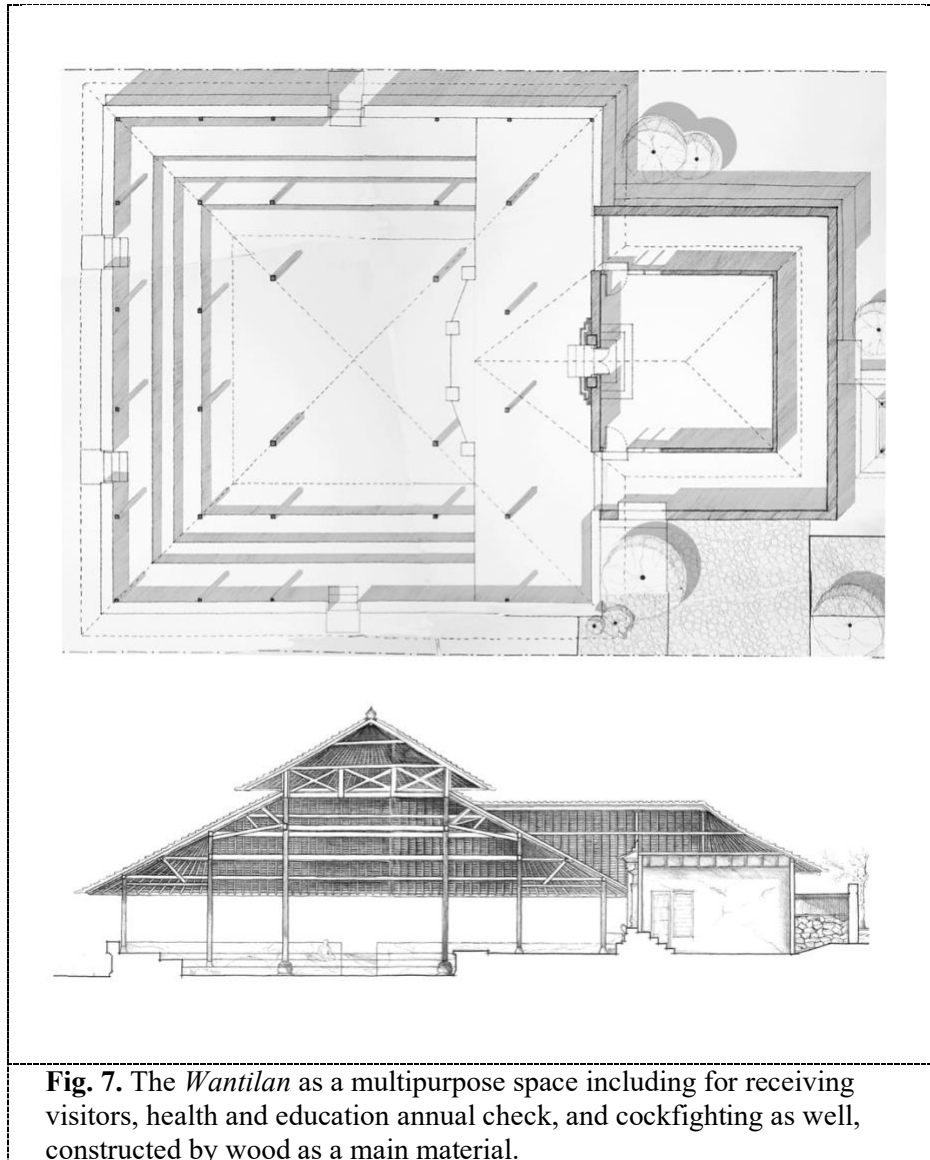


Fig. 7. The *Wantilan* as a multipurpose space including for receiving visitors, health and education annual check, and cockfighting as well, constructed by wood as a main material.

A building that was also built in the second half of the 20th century was an elementary school, which was founded in 1964. Its aim was to increase literacy for children in the village. The appearance of this school resembles similar buildings that can be found throughout Bali: brick walls plastered and painted white with a clay tile roof. As a result, it appears in contrast to its surroundings. This shows us that the village started to receive influences from the outside world since the second half of the 20th century.

Since Bali became a part of the Republic of Indonesia, Tenganan Pegeringsingan Village has officially been a part of Bali Province, Karangasem Regency, and Manggis District. The local village administration village serves as the smallest administrative unit of the formal government, with its authority limited to providing citizens administrative services. Unlike traditional villages, these formal government units do not have assets. Therefore, the village is managed and run within the framework of traditional government because the administrative villages lack of authority.

The village's condition, with its traditional life and well-maintained physical conditions, is an attraction for modern society, thus attracting tourists. This condition, according to a respondent, has occurred since the 1970s. However, since the 1930s, sporadic visits have occurred, mainly by researchers. Currently, the average number of tourists visiting, both domestic and foreign, can reach

45,000 per year. In peak months such as July, August, and September, the average daily visit can reach 300 people.

The regency government sees tourism as having economic potential worth pursuing seriously. The government is making several efforts, including plans to charge entrance tickets for visitors, to ensure the arrival of foreigners brings benefits to the village. However, village leaders rejected this proposal. Currently, the village welcomes tourists free of charge, although they have the option to make donations if they are willing to. The high demand to accommodate tourism on the basis of its economic benefits comes not only from the government, but also from the business world, which proposes to build homestays. Another group suggests rescheduling the ceremonies to a different day as a means of attracting more visitors. The regency government also proposed to form a business entity that specifically handles the tourism business; however, the village still considers the arrival of tourists as a side effect of their activities. Moreover, they are worried that this could trigger dependence on tourism and have a negative impact on their duty to maintain rituals. So, they think tourism is not important.

More changes in village macro-spatial planning occurred when the government's intentions meet the needs of the community. Since the 1990s, most people have owned motorized vehicles, including cars. From here, the need for parking space arises. This coincides with the start of a large number of tourists arriving by buses of various sizes. The government and village, both in need of facilities, agreed to construct a parking lot with several souvenir kiosks. However, its location is still not in the village's main area, but outside the entrance gate. The increasing number of visits and the launch of the Heritage City program by the central government in 2015 again brought changes to the entrance area. They expanded the parking area and separated the entrance gate between tourists and villagers. Government involvement is present, but private intervention is still limited.

3.3.1. Spatial Structure and Physical Form of Residential Buildings

Evaluations of residents' homes diminish the persistence of spatial patterns at the macro level. At this more micro level, many adjustments occur to meet personal and family needs.

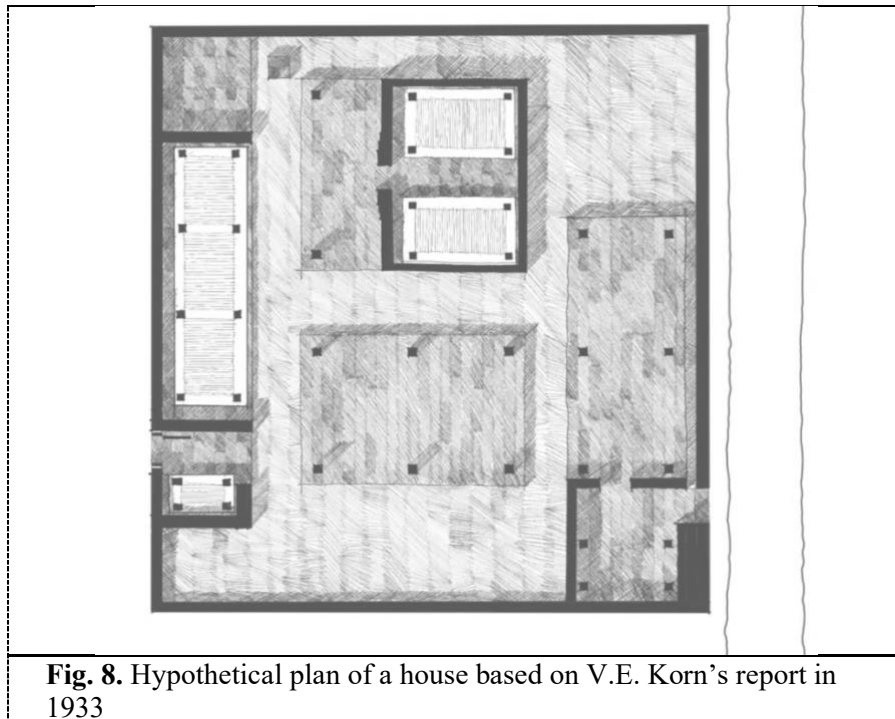
Traditionally, plots for residential areas have relatively the same size, with uniform zoning patterns. Walls enclose it on all four sides, and a gap in the wall facing the *awangan* allows entry. If we look at sketches made in the 1930s, (Korn, 1933), we can see that the dwelling plot is divided into four zones. Two sacred buildings, *Bale Buga* and *Kemulan*, stand in the front part facing the road, where families make offerings. This *bale buga* has an elongated shape with eight sets of posts. The row of posts creates three bays without walls, and one bay that remains open, serving as the entrance to the dwelling. The roof of this building extends all the way and across the entrance area. One of the spaces in the *Bale Buga*, a holy place, and is used for storage of sacred objects and accommodates offerings at specific times. Another space serves as sleeping place for males in the family.

The second zone consists of two main buildings: the *siandandan mehamben*, a half-closed *bale*, and the middle structure known as *bale tengah*, a structure with no walls that serves as a storage area for rice distribution from the village. Every day, the residents of the house carry out their household activities in this open pavilion. Parents and girls use a covered portion of another *bale* for sleeping. The third part is a cooking area and domestic workspace, with an open building extending parallel to *Bale Buga*. In this building, the residents pound rice and cook. The final section consists of vacant land known as *teba*. Here, housewives raise pigs. The arrangement of the house facing the *awangan* leads to an arrangement of houses with back-to-back *teba*. To separate the back-to-back *teba* a small drainage ditch flows from north to south through a small channel.

The building materials are similar to those used in public buildings, but in the past, the roofs were made of coconut leaf. Wood and river stone are the main materials for all structures in the compound. The use of raised floors and columns, combined with the hall as a bed, seeks to replicate the

characteristics of public buildings. There are not many ornaments or decorations on the buildings in the house yard. The plot's size and the buildings within it are very compact, leaving little open space for circulation. The close spacing of the *bale* within the house yard also facilitates shadows on hot days, making the yard cool.

Currently, dwellings in Tenganan are experiencing significant transformations in spatial layout, shape, and form of buildings, as well as materials and construction. The absence of building layout regulations provides an opportunity for individual innovation, causing houses in Tenganan Pegeringsingan to abandon their uniformity. The spectrum of changes begins with the smallest element, namely space utilization, and progresses to the largest, namely changes in plot zoning.



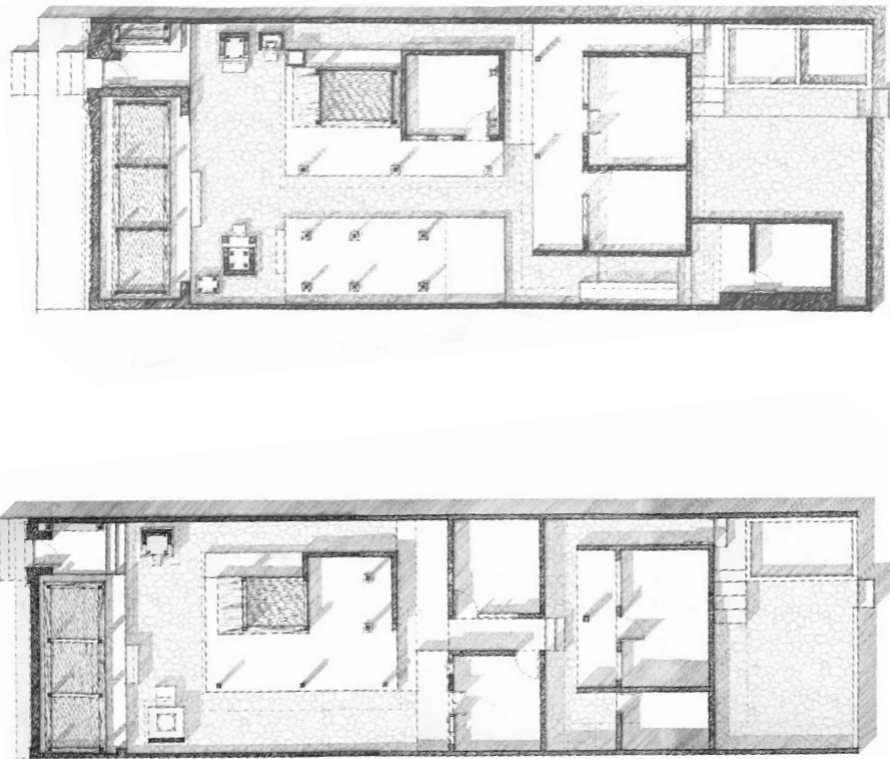


Fig. 9. Changes in the plan where only the *bale buga* and front part of the house is still maintaining its 'originality'

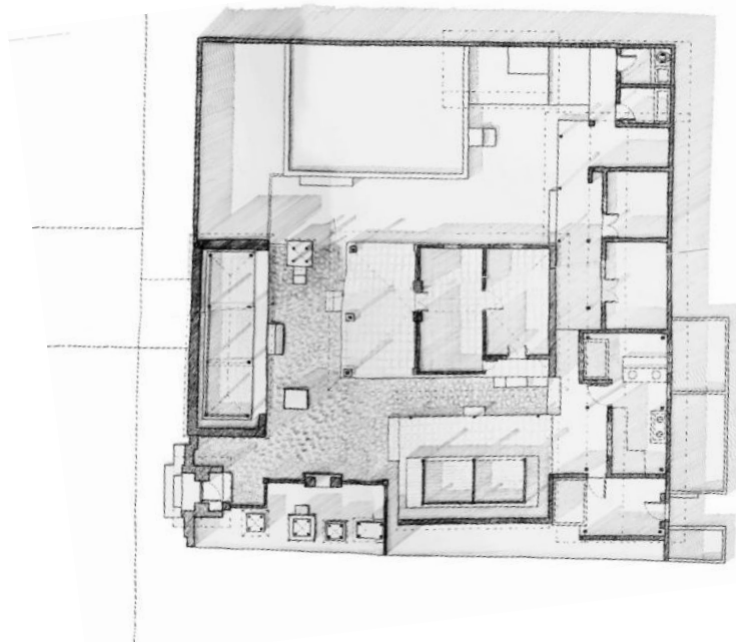


Fig. 10. The most significant change where new members of a family require more rooms

Changes in the function of the house spaces occur due to two main reasons: changes in family structure and the introduction of tourism activities into the residence. Adding members means the

family needs more room. This need is addressed by relocating the cooking area to create additional space for a new room. In the area behind the traditional kitchen, namely in the *teba* area residents have built a new cooking space. Furthermore, changes in the functions of spaces also occur due to the sleeping areas being used as places to display *geringsing* cloth, other fabrics and items for sale to tourists. Roofs have also been added above the open to sky spaces to protect the fabrics and other merchandise from the sun, which can the color. This changes the shape of the space between buildings on the plot and prevents natural light from entering the *bale*. This especially happens in *Banjar Kauh*, which receives more tourist visits.

The change in the shape of the building that stands out visually, especially from the road, is the change in the shape of the *Bale Buga* building. Some houses have incorporated a new entrance gate, known as *Kori Ngeleb*, which is a gate structure that is separated from the *Bale Buga*. This term denotes the shape of the entrance, (*kori*), and the detached position, (*ngeleb*), that separates it from the *Bale Buga* structure. This *kori* makes the *bale buga* shorter and does not connect with similar *bales* in the plot next to it. As a result, the row of *bale buga*, which previously formed a united and continuous linear, elongated roof because it connected one compound to another, becomes disconnected.

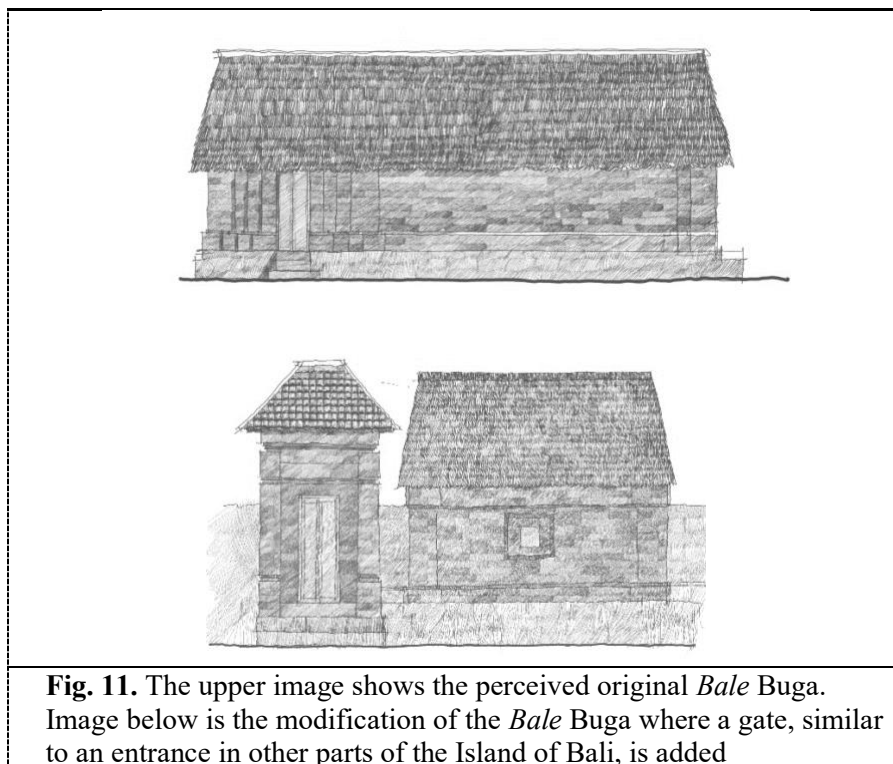


Fig. 11. The upper image shows the perceived original *Bale Buga*. Image below is the modification of the *Bale Buga* where a gate, similar to an entrance in other parts of the Island of Bali, is added

Lastly, changes have occurred in building materials, particularly the roofs of the *bale* within the dwelling compounds. Practicality, cost, and ease of work are among the reasons for replacing roof materials which were originally made of coconut leaves and palm fibre with corrugated metal sheets and clay roof tiles. An analysis of aerial photos taken during the survey reveals that only public buildings and *bale buga* in the compound still use natural materials. The rest are made from industrial materials.

According to the distribution of buildings, the ones that experience the most changes are in Banjar Pande, where residents with *krama gumi* status live. In this section of the village, Banjar Pande, traditional regulations and practices are less strict than in the main *awangan*. The changes indicate that influences from outside the village are quite difficult to resist, and quite common. In addition, village residents who have migrated outside the village require new spaces to support their professional work upon their return, necessitating changes to the space, the buildings, and layouts of their dwellings.

Another cause of change in dwellings is the absence of traditional builders who possess an understanding of traditional village buildings. In the 1930s, there were still 12 carpenters, 2 workers who were experts in processing stone, and one expert in making iron tools (blacksmith). Their task was to repair existing facilities and rebuild structures as needed in the village, including buildings in the dwelling compounds. The village paid them according to the quality of their work. Given the stagnant population growth in Tenganan and the use of durable manufactured materials, this group of builders has experienced a decline in employment over time. As a result, workers from outside the village handle renovations and other construction work, resulting in a change in building morphology. These workers replicate previously constructed buildings that they have built in places outside Tenganan.

In the midst of many changes caused by various factors, village administrators see a positive side in tourism, which helps them advocate the sustainability of the village architecture. Creating a clean, beautiful, and orderly environment is now a concern for many village residents, especially those who benefit from tourism activity. Apart from that, there is a movement of village youth who are now more concerned about their village's history and origins. Coupled with the large amount of research that has been previously carried out on villages, there is sufficient capital to start developing village governance in the face of change. However, being busy carrying out various traditional rituals and required ceremonies throughout the year, residents of Tenganan are not sure where to start the process of maintaining their architectural heritage or the sustainability of their way of life because there is no guidance on this matter.

1. Conclusion: Authenticity, Change, and Vernacular Settlement Management

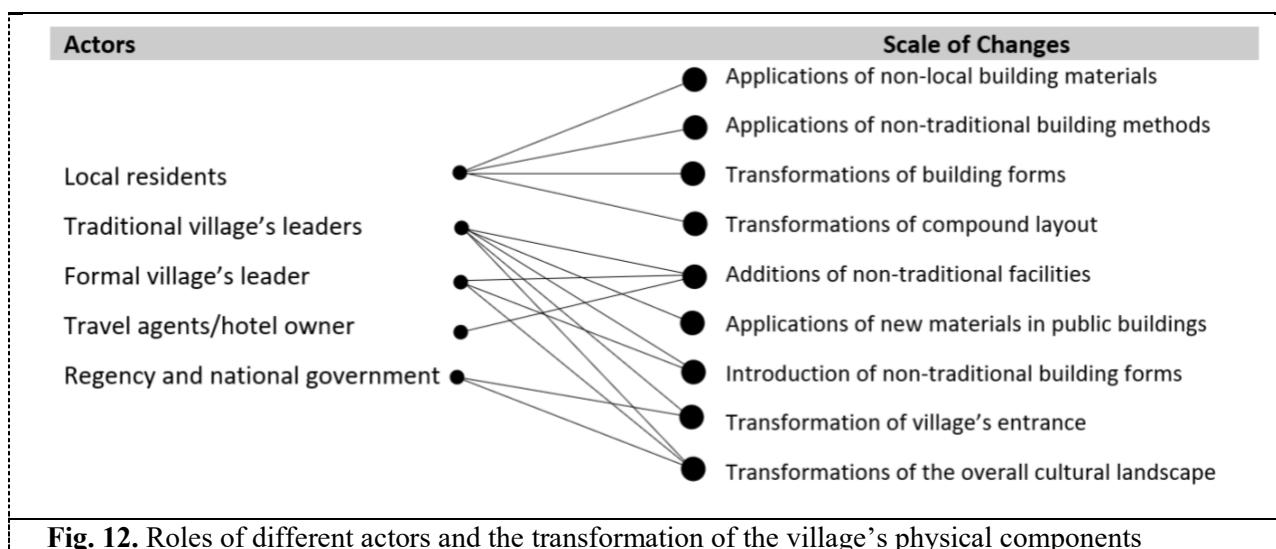
Incompleteness, transience, and flux occurs in almost all traditional settlements. Tenganan Pegeringsingan's case provides some interesting insights into the existence of vernacular settlements amidst the changes caused by various recent advances. In the debate on vernacular settlement theory, we can further explore four factors that occurred in Tenganan Pegeringsingan, particularly in relation to its ongoing development. The cause of changes or developments in the settlement is the first thing that becomes apparent. In the case of Tenganan Pegeringsingan, there are two causes of change that occur internally and externally.

Internally, society consists of individuals, groups, and villagers who are gathered in communities. Every individual has different ideals, hopes, and views, which results in different educational and employment choices. As social creatures, they also associate with individuals and groups outside the village. This second group may have other social circles outside the village, and they may be stronger than those in the village. Apart from that, the most important thing that happens at this level is the change in family structure. The addition or reduction of family members causes changes in demands for the number, size, and quality of space in the house. These factors influence people's perspective on life, which is manifested in differences in choices in terms of space needs, choices of materials, expenses, etc. Being dependent upon individual resources these changes do not always occur at the same frequency within the village.

The village community, however, firmly believes that maintaining their identity and the identity of their built environment is an important matter. This communal steadfastness has proven that it can stem the occurring flow of changes. As a result, the village's success in maintaining its life and the

purity of its ceremonies have long been sought after by tourists. The government and industry require the village to provide more parking lots to be able to welcome more tourists. Fortunately, the community has established a communal decision-making system that ensures their voices remain heard. On the one hand, the community does not reject it, but at the same time, it can avoid the bad effects that might be caused by the tourism business.

Opportunities to gain economic benefits, the desire to preserve the village, and other efforts to provide basic services such as health and education, which are the duties of the supra-village government, also have an impact on the village. Regional management by the formal government from the national to the district level and various programs they have created is the cause of changes that originate from outside and exceed the control capabilities of village communities.



The Tenganan Pegeringsingan case study teaches us about the scale of change. Changes occur at various levels, ranging from the smallest, such as the use of space in buildings, to the largest, such as the traditional residential architecture in general.

The analysis of physical changes concludes that no element, except the holy place area, is immune to physical changes. If we look closely, the use of space in buildings and compounds is the most vulnerable and undergoes the most changes. The changes in the use of space have an impact on adjusting the shape and material of the building. Because the buildings change, the layout of the housing compound also experiences adjustments, but the plot area remains the same. However, some still follow the same basic pattern of dividing zones within the compound as in the past. This still provides characteristics and uniqueness that continue to survive. Next, changes also occur on a large scale, namely the construction of parking lots, schools, and *wantilan* in the village. These large-scale changes took place over a long period of time.

The third factor, and arguably the most important, is the actors who make the changes. The actors in this situation range from the national government to the smallest, namely individuals or village residents. The most important actors are village residents as plot residents and holders of residential land use rights. Individuals are the ones most interested in the use of space in their home, so they feel entitled to make physical adjustments so that their personal environment meets their family's needs. Personal preferences heavily influence needs, desires, and tastes, which can either align with societal desires or solely uphold individual rights.

On a larger scale and involving the public, change always goes through traditional meeting mechanisms. Meetings involving all village residents are an effective means of managing changes that affect the lives of many people. Next, the Karangsem Regency Government, which has responsibility for the progress and welfare of all residents in the eastern region of Bali, also has an influence on the

survival or changes that occur in Tenganan. Efforts to increase local own-source revenue, for example, through tourism activities, can influence their village's decisions. The government at a higher national level, has programs that can influence villages, such as the Heritage City Program, which is running in Tenganan.

If visualized in a diagram, the changes that occur, including scale, causes, and actors, can be depicted as in the image below with three axes. When it is at the starting point, there is no change, but the further it goes, the more massive the change is. Changes must be organized to maintain authenticity.

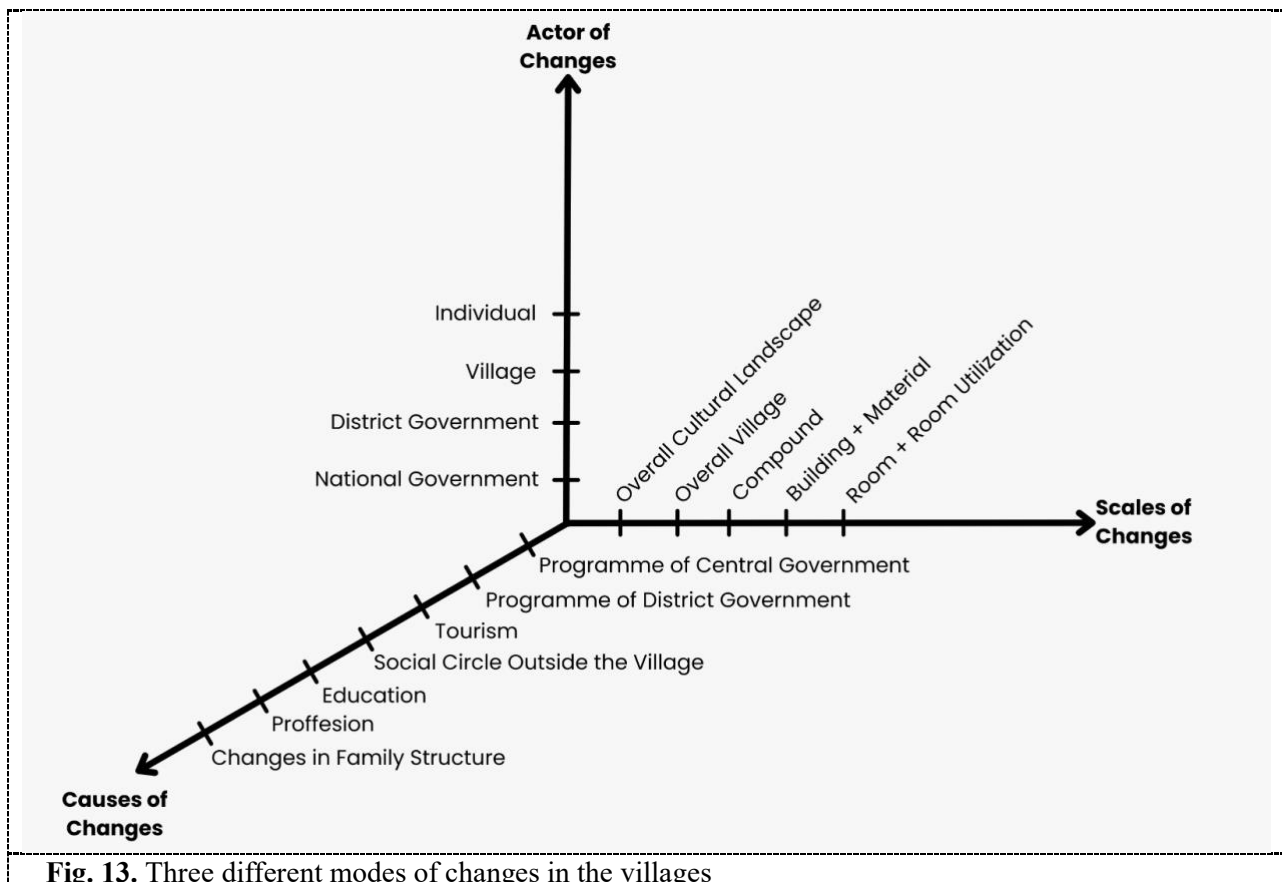


Fig. 13. Three different modes of changes in the villages

The changes experienced by all vernacular settlements can have major effects, especially the concern about the loss of sense of rootedness. The experience of being there and having a strong attachment to a place can psychologically strengthen the sense of belonging. When surrounding conditions change rapidly and on a large scale, people can feel powerless, especially if the change comes from outside their area. However, life must move forward; it is impossible to stay in place, let alone move backwards. Therefore, effective management of change is crucial.

Change in Tenganan has definitely occurred. However, the majority of change in architecture in the village as stated earlier is limited primarily to houses. The strong community and communal administrative structure of the village has ensured continuity of traditional materials and construction techniques for the community and religious structures. While communal practices and regulations once also dictated certain parts of residential buildings such as the traditional form of the combined *bale buga* and *awangan* (entrance door), these restrictions seem to be overlooked now-a-days by residents who can afford to make modifications due to increased status related to individual wealth or education. In the case of houses in Tenganan the traditional dominance of equality and collective agreement is slowly but surely shifting to a new tradition of individuality and personal expression of 'status' or 'success.' Unfortunately, this practice is altering the traditional homogenous character and harmony of the architecture and village atmosphere as a whole. Community education programs can show

residents that individuality and status can also be expressed under managed change and can help Tenganan to reverse the current practices. If the focus of individual expression can be re-directed toward sensitive interventions and changes that can be agreed upon by the collective village administration in consultation with and guided by specific conservation policies and inputs from appropriate professionals in that field, change can be sensitively and creatively orchestrated. In other words, a managed set of conservation and redevelopment guidelines collectively agreed upon by village council and professionals can ensure continuity of traditional architecture and also allow change without adversity affecting the overall character of the village landscape.

The case of Tenganan demonstrates how villages can manage the impact of external factors, particularly Bali's tourism and new mode of governance, on village transformation. A settlement, on the other hand, consists of many families whose members have their own ideas, imaginations, and perspectives managed under the form of customary or traditional village administration. This sort of administrative structure contributes to the village's success in maintaining its identity at the macro level but not at the household level. This condition causes many traditional settlements to feel undecided. Either they should strengthen village regulations to the level of households, which would reduce individual freedom, or they should merely regulate at the macro level, which would mean that changes at the micro level would continue to occur. If identity is to be maintained, discussions between group members and between generations must continue, taking into account the ongoing dynamics in society. This will give every individual a voice to participate in creating a collective identity without compromising their right to share their opinion and without losing their unique architectural identity that attracts visitors in the first place.

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