

# Study of spatial and architectural transformation process in Tenganan Pegringsingan traditional village, Bali

Astrid Novika Pramita<sup>1\*</sup>, and I Gede Oka Sindhu Pribadi<sup>2</sup>

<sup>1</sup>PT Gemadeka Erfolga, South Jakarta, Indonesia

<sup>2</sup>Department of Architecture, Faculty of Civil Engineering and Planning Universitas Trisakti, Jakarta, Indonesia

**Abstract.** Tenganan Pegringsingan Village, located in Manggis District, Karangasem Regency, on the eastern side of Bali, is renowned for its status as a Bali Aga village—a traditional mountainous settlement. Rich in cultural and natural tourism potential, the village has undergone significant transformation since being designated as a cultural tourism destination by the government. These changes are evident in the spatial arrangements and traditional architecture at various levels, including the macro village, banjar (community groups), and individual residential buildings. This research employs qualitative methods with a phenomenological approach, utilizing direct observation, in-depth interviews, and spatial and architectural mapping to gather data. The study aims to provide valuable insights into the management of tourism-oriented villages in Bali, particularly those rooted in traditional village structures. The findings are intended to support the preservation of cultural values while accommodating the evolving demands of the tourism sector.

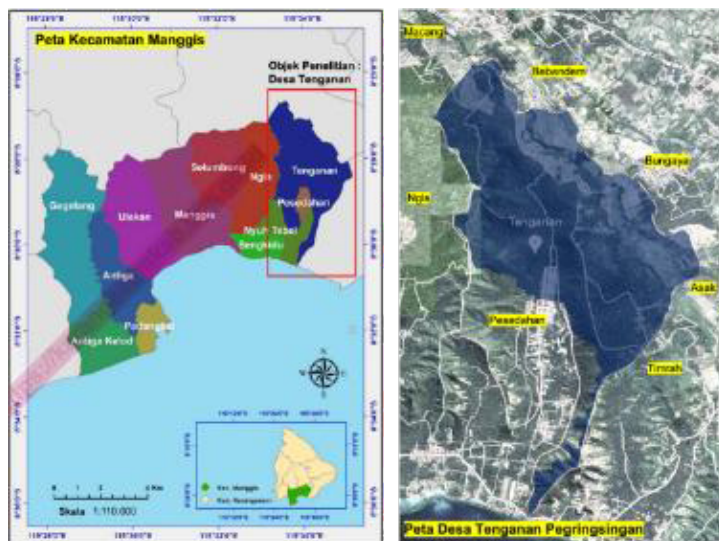
## 1 Introduction

Tenganan Pegringsingan Village, situated in Manggis District, Karangasem Regency, Bali, is one of the renowned *Bali Aga* villages [1], as illustrated in Figure 1. Known as a traditional or ancient village, Tenganan preserves the customs and culture of Bali as they existed prior to the influence of Hindu-Buddhist traditions [2]. The village exemplifies the distinctive characteristics of the *Bali Aga* community, including the principle of *kesamen* or equality, which emphasizes cooperation and social harmony [3].

As a traditional village, Tenganan Pegringsingan features a spatial and architectural layout that embodies the principles of *Tri Hita Karana*, the harmonious relationship between humans and God, among humans, and with the natural environment [4]. This is reflected in the village's social structure, spatial organization, and traditional buildings, such as temples and dwellings, which emphasize the spiritual and aesthetic values characteristic of the *Bali Aga* culture [5].

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\* Corresponding author: [astridnovika24@gmail.com](mailto:astridnovika24@gmail.com)



**Fig. 1.** Map of Tenganan Pegringsingan Village.

In recent decades, globalization and the growth of tourism have significantly influenced the village community, prompting a shift from agrarian livelihoods to a reliance on the tourism sector [6]. Despite these changes, the residents of Tenganan have successfully maintained a balance between cultural preservation and modernization by adhering to customary laws, such as *awig-awig* [7]. While tourism has positively impacted the local economy, it also presents challenges in sustaining the village's cultural and environmental integrity [8].

This study examines the spatial and architectural transformations of Tenganan Village in response to socio-cultural changes, focusing on how the community synergizes traditional values with modernity. The findings aim to provide guidance for the sustainable management of tourism villages, both in Bali and beyond.

### 1.1 Research problem

Tenganan Pegringsingan Village, renowned for its rich cultural heritage and strong traditions, is currently facing multifaceted challenges stemming from social, economic, and environmental changes. These transformations are driven by foreign cultural influences, modernization, and globalization, which have significantly impacted the community's lifestyle, spatial organization, and traditional settlement architecture. Such changes pose a risk to the preservation of traditional values and the authenticity of the local culture, which form the core identity of the Tenganan community.

One prominent example of this shift is the declining use of the original Tenganan language among the younger generation and the repurposing of traditional housing structures into commercial spaces. While these changes contribute positively to economic growth and facilitate communication, they also threaten the continuity of traditions and the preservation of cultural heritage.

Additionally, the village faces environmental challenges, including the effects of global warming, limited water resources, and pollution, which influence both its physical and social conditions. The spatial organization and architectural design of the settlement have undergone functional and structural modifications to accommodate modern needs. Despite these changes, certain traditional elements have endured, sustained by deep-rooted beliefs and customs passed down through generations.

The central issue lies in how Tenganan Pegringsingan Village can preserve its authentic traditions and customary values amidst these transformative pressures. This study aims to analyze the extent to which these changes impact the village's identity and to explore strategies for maintaining its traditional character and values within the dynamic context of modernization

## **2 Research methods**

This study employs a phenomenological approach, a qualitative methodology aimed at gaining a deep understanding of human experiences. As defined by Alase [9], phenomenology enables researchers to utilize subjective and interpersonal insights to comprehend the lived experiences of a community. In this context, phenomenology is applied to explore how the people of Tenganan Pegringsingan Village perceive spatial and architectural transformations within their environment, and how these changes influence their overall way of life.

The research process involved field mapping and data collection conducted over a period of one month (June 2023) within Tenganan Pegringsingan Village, Bali. During this period, researchers carried out direct and repeated field observations to document visible changes in spatial organization and architectural forms across several banjar areas. The documentation process utilized a camera, audio recorder, video device, and manual recording tools such as paper, measuring tape, and pencils for sketching and note-taking. These tools enabled accurate recording of spatial characteristics and architectural details found in the village.

Data were further enriched through in-depth semi-structured interviews with indigenous residents, traditional leaders, and local government representatives to capture both personal perceptions and collective attitudes toward the observed transformations. Additional insights were obtained through literature review and document analysis, ensuring contextual understanding of spatial traditions and cultural dynamics.

Data analysis was conducted through three systematic stages: (1) Clarification: identifying key issues and interpreting the underlying meanings of the observed changes by classifying transformations in spatial patterns, building typologies, and community use of space; (2) Motivational and Attitudinal Analysis: examining the motivations, cultural drivers, and social attitudes behind each transformation through manual coding and comparison of interview transcripts and observation notes; Synthesis of the Transformation Process: integrating findings from field data and interview analyses to produce a comprehensive interpretation of how spatial and architectural changes reflect the adaptive processes within the Tenganan Pegringsingan community.

Through these stages, the study aims to reveal the relationship between tradition and adaptation in the village's spatial evolution and to interpret the socio-cultural implications of these architectural transformations.

## **3 Results and discussion**

### **3.1 Village-scale transformation**

The transformation of Tenganan Pegringsingan Village began following the designation of the nearby Candidasa area as a tourism destination in 1983. This milestone initiated the development of supporting tourism infrastructure, including improved accessibility, facilities, tourist attractions, and increased regional investment. The rapid expansion of tourism-related facilities in the 1990s corresponded with the surge in tourist arrivals to Candidasa. Despite these external developments, macro-level changes within Tenganan

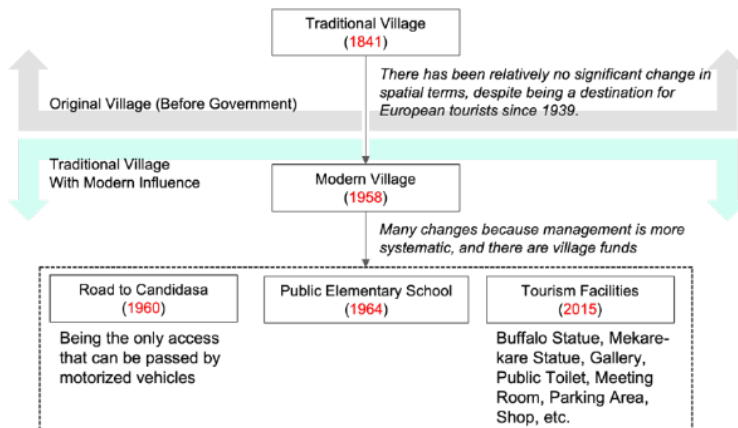
Pegringsingan Village have remained relatively minimal. This stability is primarily attributed to the community’s strong adherence to *awig-awig* (customary laws), which has effectively preserved both the environmental balance and cultural sustainability of the village.

The transformation of Tenganan Pegringsingan Village illustrates how a traditional Balinese settlement negotiates modernity without relinquishing its cultural identity. At the village scale, the influence of tourism has undoubtedly reshaped the physical and economic landscape; however, the consistent enforcement of *awig-awig* ensures that such developments remain under customary regulation. Similar dynamics are evident in other traditional Balinese villages, such as Penglipuran and Trunyan, where customary law functions as a cultural filter guiding spatial and architectural adaptation [10, 11]. In both cases, tourism-driven development was accepted only when it aligned with traditional values and communal norms. This pattern closely parallels the situation in Tenganan, where modernization progresses selectively, maintaining the overall spatial and cultural integrity of the settlement.

Within this context, transformation at the village scale can be identified across four key domains:

(1) village governance; (2) the local economy; (3) educational patterns, and (4) village accessibility. Each of these domains reflects the community’s adaptive capacity to integrate external influences while upholding local wisdom and customary principles.

Broadly, the transformation of Tenganan Pegringsingan Village can be categorized into two periods, based on historical and contemporary village data (Figure 2): (1) First Period (1841–1958): This period began with the formalization of the *awig-awig* in 1841 and extended until the establishment of the Tenganan *Perbekel* village service organization in 1958. Over these 117 years, no significant spatial changes were recorded at the village scale. Population data for this period is unavailable, making demographic trends difficult to trace. However, historical accounts indicate that the indigenous community maintained its customs and traditions, which were documented by Kohn in 1939 [12], establishing Tenganan as an appealing destination for European tourists. (2) Second Period (1958–2024): This period began with the integration of the *Perbekel* administrative system in 1958, following Indonesia’s independence and the establishment of regional governance structures. The introduction of this system significantly influenced the spatial development of the village, leading to the construction of facilities such as the *Perbekel* office, schools, infrastructure, and tourism-support amenities. While modern development introduced changes that somewhat disrupted the village’s traditional authenticity, these developments were carefully implemented to align with customary norms and laws.

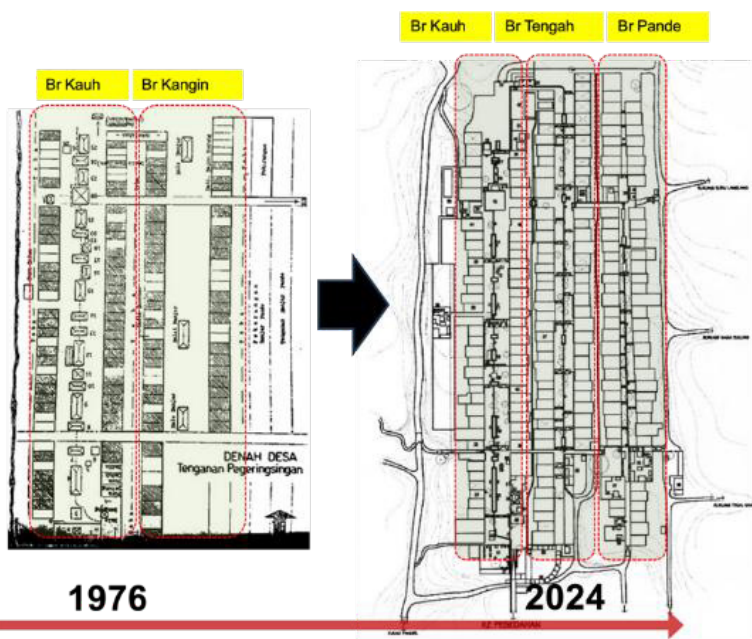


**Fig. 2.** Village scale transformation process.

The transformation of Tenganan Pegriingsingan Village reflects the balance between preserving its traditional identity and adapting to modern developments. The community's commitment to customary laws has ensured that changes respect the cultural and spatial integrity of the village, even amidst the pressures of tourism and modernization.

### 3.2 Banjar-scale transformation

Tenganan Pegriingsingan Village consists of three traditional *banjars*: Banjar Kauh, Banjar Tengah, and Banjar Kangin (Figure 3). Observations reveal that significant changes have occurred within these traditional *banjars*. The growth of tourism in Tenganan Pegriingsingan has motivated residents to pursue supplementary income by producing and selling high-value artistic items, which serve as attractions for visitors. This shift has led to spatial modifications within residential properties, as homes are adapted to accommodate commercial activities.



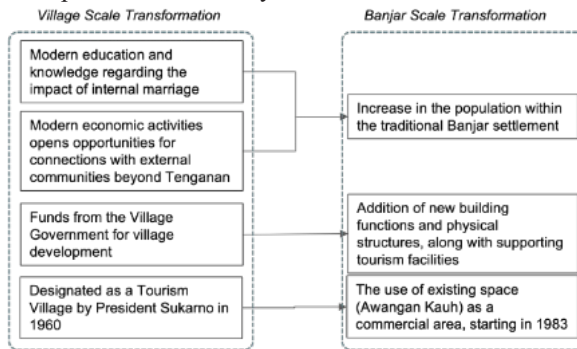
**Fig. 3.** The changes in Banjar scale.

At the banjar scale, spatial transformations in Tenganan Pegriingsingan Village reflect a clear pattern of socio-economic adaptation to tourism growth. The conversion of residential yards into production and selling areas illustrates a fundamental shift from a subsistence-based economy toward a market-oriented system. This finding aligns with Wijaya's observation that tourism often induces a functional hybridization of domestic spaces in traditional Balinese settlements [13]. However, unlike in Ubud and Kutam where commercialization has resulted in spatial homogenization and the erosion of communal areas [14], the banjar structure in Tenganan continues to uphold a strong sense of kinship and ritual connectivity. The community's consistent engagement in traditional ceremonies and daily social interactions has played a crucial role in mitigating the pressures of commercialization, allowing cultural and spatial continuity to be maintained.

Spatial transformation at this scale can be identified through three interrelated factors: (1) increased yard occupancy, driven by population growth resulting from mixed marriages; (2) the addition of building functions, made possible through financial support provided by the

village office; and (3) the utilization of open communal spaces, particularly *Awangan Kauh*, for displaying and selling merchandise.

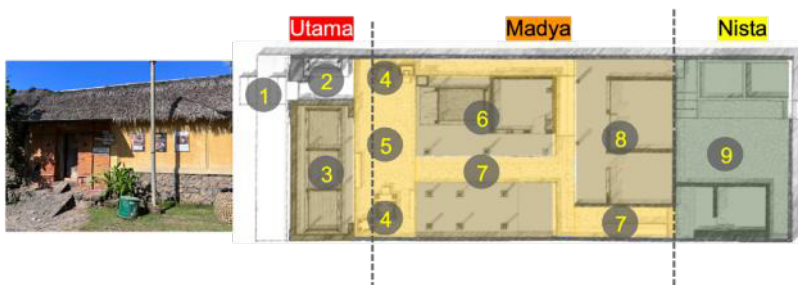
The use of *Awangan Kauh* as a commercial display area reflects the village’s adaptive response to tourism while retaining its traditional spatial hierarchy. Historical data and settlement maps from 1976 indicate that Tenganan Pegringsingan had already emerged as a minor tourist attraction by that time, long before the official designation of the Candidasa area as a tourism destination in 1983. Following this declaration, *Awangan Kauh* evolved into a semi-commercial communal zone that bridges traditional spatial identity with economic opportunity. Thus, the banjar-scale transformation in Tenganan can be seen as a negotiated process, one that accommodates tourism-driven change without disrupting the integrity of communal space and customary social order.



**Fig. 4.** Banjar scale transformation process.

### 3.3 Housing scale transformation

At the housing scale, the transformation of elements such as *Bale Buge*, *Natah*, and *Sanggah* reveals a negotiation between sacred and profane spatial functions. Earlier studies by Hobart [15] and Geertz [16] note that Balinese architecture is deeply symbolic, with each space expressing cosmological meaning. The modification of sacred zones into commercial display areas, therefore, signifies not only economic adaptation but also a redefinition of cultural values. Yet, as shown in contemporary research by Ramadhan and Wirawan [17], the people of Tenganan still perceive the *Bale Buge* as a sacred core that connects household spirituality with communal identity. This indicates that transformation in Tenganan is not a rupture, but rather a selective adaptation, a process of negotiating change while maintaining the symbolic hierarchy of traditional space. In the context of the transformation of traditional spaces in Tenganan Pegringsingan Village (Figure 5), many elements of the traditional house structure have undergone changes from their original functions.

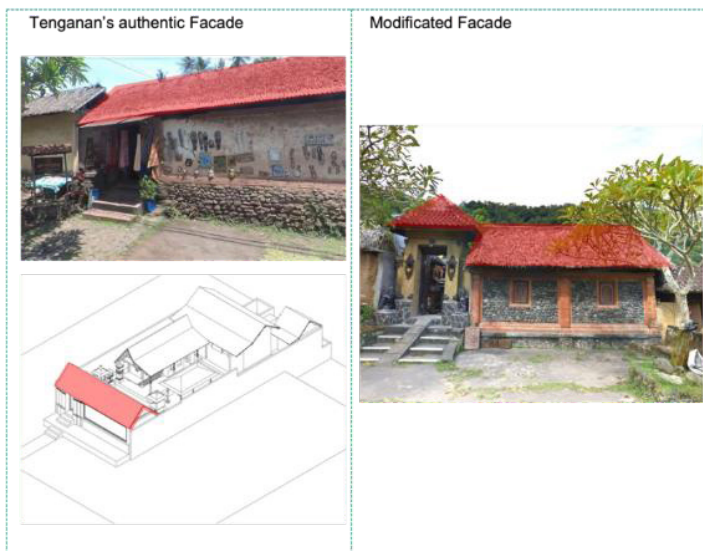


**Fig. 5.** Tenganan housing layout.

### 3.3.1 House entrance

Previously: In Tenganan Village, the entrance to the house was integrated with the roof of the Bale Buge, which was covered with rumbia leaves. From the front or overhang, the walls of the traditional Tenganan house appeared straight, without any elevation differences or distinctive formations at the entrance. The front wall of the building was constructed from river stones sourced from the river on the village's western side. This element is significant in Balinese architecture, symbolizing a connection to nature and spirituality (Figure 6).

Currently: The entrance to the house now features various shapes and materials. The use of *angkul-angkul*, or entrance gates, in Tenganan Pegringsingan Village is a means of enhancing the visual appeal of traditional Balinese homes, although this is not a heritage element of the Bali Aga village in Tenganan. Additionally, the entrance and facade walls of the house are often utilized to display merchandise, transforming the fence wall into not just a spatial divider but also a transitional space that captures tourists' attention and serves as a means of enhancing the homeowner's social status, as reflected in the visual presentation of the facade.



**Fig. 6.** Changes of housing entrance.

### 3.3.2 Bale Buge

Previously: The Bale Buge was situated in the central zone of the traditional Tenganan house and was exclusively used to support spiritual and religious activities, primarily serving as a storage space for ceremonial objects. The roof of the Bale Buge was traditionally made from dried coconut leaf thatch, as it was considered a sacred structure within the main area of the hierarchical layout of the Tenganan house.

Currently: In addition to its function as a storage space for traditional ceremonial items, some houses in Tenganan have repurposed the Bale Buge as a display area for souvenirs, which deviates from its original role as a sacred and central space in Balinese culture. In terms of materials, no significant changes have been made to the roofing type or structure. However, the walls of the Bale Buge now also serve as a boundary fence for the yard, and in Banjar Kauh, some are used as promotional displays for handicrafts. In certain cases, the materials used for the walls have been altered, replacing the original river stones from the

Tenganan River with alternative materials. This change is driven by efforts to preserve the natural environment, ease of acquiring more precise and readily available building materials, as well as a desire to control the aesthetics of the house facade (Figure 7).



**Fig. 7.** Changes of Bale Buge facade material.

### 3.3.3 Sanggah Kaja and Sanggah Kelod

Previously: Both Sanggah Kaja and Sanggah Kelod were places of worship dedicated to praying to the gods and ancestors. Sanggah Kaja was located in the north (kaja), while Sanggah Kelod was in the south (kelod), in accordance with the traditional directional alignment for worship in Balinese houses. The sanggah were open and directly connected to nature, with no structures above them providing shade. The roof of the sanggah was traditionally made from dried coconut leaf thatch, the same material used for the roof of Bale Buge, due to its sacred function.

Currently: The function of the sanggah remains unchanged, continuing to serve as a place of worship for the gods and ancestors. However, in some houses, a canopy has been added above the sanggah, often connected to the natah. In certain cases, zinc roofs have been installed over the sanggah, though this modification is not widespread and cannot be generalized (Figure 8).



**Fig. 8.** Changes of Sanggah.

### **3.3.4 Natah**

Previously: The open space inside the house, or natah, served as an area for drying agricultural products and conducting other household activities, with its open roof allowing for natural drying. In addition to this function, the Tenganan community also used the natah for standing positions during prayers. Positioned directly opposite the sanggah and Bale Buge, it was a common practice for the Tenganan community to hold religious ceremonies in this space.

Currently: The natah is now primarily used as a souvenir display area, particularly in Banjar Kauh, with the addition of a canopy roof to protect the displayed items from sunlight and rain. The space is no longer utilized for drying harvests, reflecting the shift in the local economy from agriculture to tourism.

### **3.3.5 Bale Tengah**

Previously: Bale Tengah was used for significant family events, particularly for births and deaths, making it an important part of the house in the context of customs and family ceremonies.

Currently: The function of Bale Tengah remains unchanged, continuing to serve as a space for family activities related to birth and death. As such, this space has been preserved in its original form, despite the ongoing development of tourism in the area.

### **3.3.6 Open Hallway**

Previously: The open hallway functioned as a connecting corridor between rooms inside the house, facilitating the flow of natural air and light into the home.

Currently: The hallway has now been covered with a canopy and repurposed as a souvenir display area, transforming it into a more commercial space to attract passing tourists.

### **3.3.7 Bale Meten**

Previously: Bale Meten was used as a bridal room or bedroom, a private and sacred space for the family.

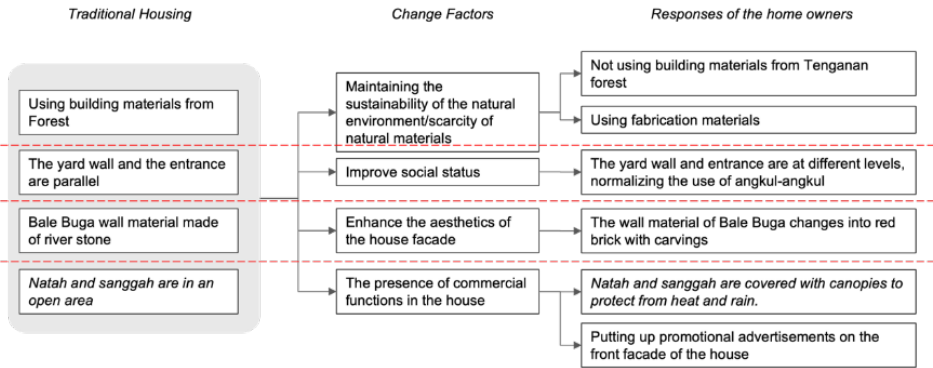
Currently: The function of Bale Meten remains unchanged, continuing to serve as a private room for sleeping and other family activities.

### **3.3.8 Paon / Teben**

Previously: Paon (or teben) was the traditional kitchen and a space for keeping livestock, such as pigs and chickens. This area was vital for the daily activities of the Balinese people.

Currently: The kitchen and animal husbandry functions remain the same, though adjustments have been made to accommodate the practical needs of household consumption and tourism-related activities.

Tenganan Pegringsingan Village has generally undergone significant spatial transformations at the residential scale, including changes in the house facades, materials, spatial configurations, and functions (Figure 9). These transformations have occurred gradually, but the original form of the Tenganan traditional house has undergone substantial modifications. While these changes are extensive, heterogeneous, and diverse, the fundamental connection to the Bale Buge remains intact. To the casual observer, the unity of the traditional houses in Tenganan still appears preserved.



**Fig. 9.** Housing scale transformation process.

Overall, the findings of this study contribute to a broader understanding of architectural resilience and adaptive tradition. They confirm the view of Suartika [18] that traditional Balinese settlements are not static cultural relics but dynamic living systems capable of integrating external influences through social consensus. The case of Tenganan Pegringsingan exemplifies how spatial transformation can occur harmoniously within the framework of customary law, maintaining cultural integrity while accommodating contemporary needs.

## 4 Conclusion

The spatial transformation process in Tenganan Pegringsingan Village occurred gradually in response to various dynamics, including government regulations, changes in the natural environment, shifts in the socio-cultural structure, and the introduction of the tourism sector. These changes at the village, banjar, and building scales were interconnected and unfolded over an extended period, particularly since Tenganan was designated as a tourist village and the village service organization became involved in the traditional village setting. The most significant spatial transformations took place at the building scale, as homeowners—who control the microcosm of their residential environment, have the authority to renovate their homes, albeit within the constraints of customary norms. Changes in livelihoods, the availability and ease of obtaining building materials, and evolving individual mindsets have contributed to various transformations in Tenganan housing, while still maintaining the core elements of the traditional Bali Aga house.

**Transformation of Traditional Villages:** The transition from a traditional village to an official village has had a considerable impact on village development, including the construction of the Perbekel office, schools, road infrastructure, and tourism facilities.

**Banjar Transformation:** (1) Increased population density in the yard due to population growth and mixed marriages; (2) The addition of building functions and the utilization of open spaces in Awangan Kauh, influenced by village office funds and tourism activities.

**Residential Building Transformation:** (1) The function of traditional houses has shifted to commercial purposes, including spaces for trade, Gringsing production, Prasi techniques, dance training, or weaving for the younger generation; (2) These changes are influenced by economic objectives, the availability of funds, and the types of activities being undertaken; (3) The land area for residential houses in the yard is relatively uniform, so changes are primarily focused on the internal layout and function of the house; (4) Changes in building materials have occurred due to the scarcity of natural materials, aspirations for increased social status, and aesthetic considerations; (5) People have started using fabricated materials to balance nature preservation and enhance the house's appearance, including the addition of

decorative elements such as angkul-angkul; (6) A shift in how people interpret traditional houses has resulted in diverse physical forms of houses within the village; (7) Factors such as trade, education, and aesthetic desires have also influenced the transformation of the house's function and form.

Overall, the spatial transformation process in Tenganan Pegringsingan Village, at the village scale, still adheres to the fundamental concept of *Tri Hita Karana*, emphasizing balance between humans and their fellow humans (*Pawongan*), humans and nature (*Palemahan*), and humans and God (*Parahyangan*). The village's economic growth represents a balance between humans and their fellow humans; the preservation of customary forests and environmental areas reflects the balance between humans and the environment; and the consistent positioning of sacred buildings and spatial zoning based on their sacredness embodies the balance between humans and God.

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