

Traditional Principles in the Urban Vernacular Environment:
Study of Persistence and Erasures of Belief System's Architectural Expressions in Denpasar-Bali,
Indonesia

by

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DISSERTATION ABSTRACT

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Doctor of Philosophy in Architecture

Title: Traditional Principles in the Urban Vernacular Environment: Study of Persistence and Erasures of Belief System's Architectural Expressions in Denpasar-Bali, Indonesia

In this dissertation, I embark on an exploratory journey to unravel the relationship between the belief systems of urban communities and the physical spaces they inhabit. Central to this investigation is the idea that our built environment and social fabric are inextricably linked, particularly evident when rural traditions encounter the complexities of urban life. The research is driven by curiosity about how traditional values, born in the expansive settings of rural-agricultural settings, are reimagined within the dense confines of urban areas. The study provides a meticulous analysis, comparing and contrasting the cultural practices of Bali's rural-agricultural regions with those of its urban areas. It observes the set of differences and similarities of practices in both places and the ways in which people change those practices for survival or transfer of traditional religious values.

The investigation operates under three hypotheses: firstly, that religious traditions are resilient and find expression in the vernacular architecture; secondly, that with increasing spatial constraints, some traditional religious architectural features may be sacrificed; thirdly, there is an implicit consensus about the sufficiency of a belief system's architectural manifestations across different densities, which is crucial in refining the contextual design approach.

Employing a multi-sited ethnographic approach, the study explores two rural areas in Bali and traces their architectural evolution in the urban context of Denpasar city. By comparing architectural adaptations across different genealogical groups, the research aims to offer deeper insight into the spatial practices of religious communities within dense urban environments.

The dissertation contends that examining the architectural expressions of vernacular houses—both traditional and modern, rural and urban—unveils how they accommodate the evolving identity struggles within Balinese society. The tacit consensus on the adequacy of the belief system’s spatial manifestations at varying density levels also reveals patterns that reflect not only the persistence of religious architectural expressions but also their resilience against spatial constraints. This enduring nature of spatial practices is posited as a key consideration for future designs and developments, enriching our understanding of the spatial dynamics of religious tradition, which is vital for spiritual identity and communal development in an increasingly diverse post-secular society.

This dissertation includes previously published coauthored material.

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Chapter 1

Overview of the Thesis

1.1 Introduction

The dissertation seeks to unravel the complex dynamics of urban vernacular settings, focusing on the interplay between belief systems and their architectural and spatial manifestations. My interest is to decode how traditional values from rural origins are adapted to the constraints of urban environments. I examined how these cultural practices are transported and transformed from the countryside to the city's compact landscape. The investigation is oriented toward discerning the contrasts and commonalities of these practices in rural and urban spheres and how individuals modify or maintain them – whether for practical survival or preserving sacred traditions. This study poses critical questions: Is it possible to classify the variations in these cultural practices? Can we see an inclination toward a particular characteristic of behavior in what people keep and what people allow to change?

Within the context of the kampungs in the city, vernacular architecture and self-help building are identified as the principal means by which residents produce their spaces. This study, therefore, navigates through the themes of “vernacular” and the process of self-building, aspiring to understand the environments that emerge from this grassroots spatial creation. The inquiry extends to comprehend how values from traditional villages inform the design, construction, and inhabitation of urban spaces. through this lens, I aim to dissect and understand the architectural responses to spatial densification, probing into the solutions people creatively employ when space is at a premium.

The study not only traces the lineage of cultural practices as they transition from rural expanse to urban enclosure but also examines how these practices are selectively preserved or innovatively altered within the constraints of urban living. It sheds light on residents' strategic choices to retain identity and community ties within the burgeoning cityscape. This dissertation, therefore, not only chronicles a set of spatial practices but also interprets the enduring nature of cultural expression as it is woven into the fabric of built forms, offering a narrative of resilience and innovation in the face of urban transformation.

1.2 Theoretical Delineations and Framework

In the effort to reveal the translation of religious tradition to the dense urban vernacular environment, I recognize the importance of looking at the root, the place where religious tradition and belief system's architectural expressions are concentrated. However, a direct comparison between "the rural" and "the urban" seems to contain a simplification of the way the Balinese transmit their tradition, because based on the preliminary study and archival investigations during the formulation of the research questions, kinship groupings (and its relation to the temple system) among the Balinese society is significant.

There is a deep connection between the spatial (architectural) patterns and social patterns, and in this case, with familial relation and their temple system. This connection is strong beyond their conformity to the general rules as contained in traditional manuscripts. Some previous researchers who mention this point are Geertz (1975), Lucas (1994), and Lancret (1997). These three researchers focus on various topics of kinship or genealogy; Geertz (1975) mentions the strong relation of genealogy to the spatial distribution of the traditional house; Lucas (1994) includes kinship systems in explaining the pattern of traditional villages; while Lancret (1997) mentions that Balinese

complete manifestation of the religious traditional rules (the spatial organization, architectural production techniques, and the uses) is concentrated on the origin house of the religious descent group. Preliminary conversation with Balinese sources and researchers confirms this phenomenon. Therefore, this genealogical (and within this theme, including its temple system) theme is considered beneficial to the research strategy to trace the translation process.

This research works within the theme of “vernacular” and seeks for the patterns of adaptation in the dense urban environment. Thus, the relevant theoretical framework guides this dissertation’s research design. The theories that guide the exploration of traditional religious principles in urban vernacular architecture in this research are the studies of vernacular architecture, interpretive anthropology, the pattern language theory, and the space syntax theory. These theories provide perspectives and methods that contribute to the investigation and provide the tools to structure the research design.

a. Vernacular Architecture and Interpretive Anthropology

The knowledge regarding vernacular architecture provides a way to look at the phenomenon and lead the direction of data collection. Knowledge of vernacular architecture is accompanied by an ethnographical approach to look for primary and secondary sources. The ethnographical approach that is being used in this research is inspired by Geertz’ interpretive anthropology, since the investigation of the belief system’s architectural expressions is strongly related to symbols and interpretation. A thick description is used as a construct in describing the phenomenon. Geertz points out that there are a few levels of analysis, even in a microscopic example. There are many different contexts of cultures that may be different to the one that a researcher understands completely. The use of thick descriptions prevents the research from only creating an observational catalog. Thick description contains analysis, implying that the analysis is tied to description, but it is

deep because it goes into the meaning. This web of meaning is not locked in people's mind, they are visible in symbols, spatial structure, forms, details, decorations, or in behavior. Therefore, the research is grounded and not only looks at how the physical environment is structured, but also by witnessing and interpreting what people do (action-oriented approach). Another logical reason to use thick description (and not bypass the interpretive phase into rules) is because rules exist but they could be broken and there may be numerous variations of them. I assume that the result may correspond to negotiations and variations of architectural expressions within the dense urban vernacular. The output of this phase accompanies the pattern language and helps to interpret the space syntax reading in the next phase of the research.

b. Pattern Language

A significant part of this study is inspired by the overarching goal of Christopher Alexander's 'first theory,' to explain why traditional and vernacular architecture were often so beautiful. Alexander (1979) coined the term "timeless way" as a process through which the order of a building or a town grows out directly from the inner nature of the people. He further explains that it does not mean that all ways of making buildings are identical. However, there is one essential invariant feature responsible for the success of the building. It may create different forms at different times, in different places, but there is an invariant core to all of them. He states that there is a definable sequence of activities, which are at the heart of all collective building processes. Hence, a Pattern in this study is defined as a recurring relationship between parts of the environment, based on habitual human practice and belief.

The Pattern Language (Alexander, Ishikawa et al., 1977) delivers 253 design patterns and forms the foundation of a shared design language. It is beneficial to note that each of Alexander's patterns follows a strict format of subsections: the title, a prelude, body of the pattern, and a postscript. Each

of Alexander's patterns contains a series of forces that create a harmonious balance, hence creating wholeness. Through this catalog of design patterns, I could see the relation of the pattern language to structural linguistics. Alexander develops a set of vocabulary of architectural features. The body of patterns act as descriptions of this vocabulary, and the connection of each pattern to the complementary patterns structures the language and act as the grammar. Alexander states that the patterns in the built environment contain 'if-then' statements. The 'if' statement is the context or situation, whereas the 'then' statement describes the required spatial configuration for the context. The application of the pattern language in design involves the process of making choices among options of available patterns and their relation to other patterns. This process generally moves from larger scale to smaller scale.

A similar influence of linguistics could also be seen in Henry Glassie's work (in cultural anthropology and the study of folklore) in his investigation of the American house (Glassie, 1975). Glassie states that there are sets of rules that relate form and use, which operate in the minds of folk architecture designers. These folk architecture designers use the rules to generate the design of houses. He mentions that exploration of the rules that generate buildings can provide explanations about the society at a time of change. Some other examples of the application of pattern language approach in investigating domestic spaces are *Houses Generated by Patterns* (Alexander et al., 1969) which presented general design principles to define a new indigenous architecture in Peru, and *A Pattern Language for Houses at Pompeii, Herculaneum, and Ostia* (Watts, 1987) which studied urban Roman houses in Italy. Based on Alexander's pattern language and Glassie's work, Watts (1987) provides a clear attempt in using pattern language as an approach to analyze the patterns that generate Roman houses, the impact of the patterns to users' activity, and the similarities or differences over time.

The idea of the investigation is to look at buildings and towns in terms of their patterns to understand the physical structures. The comparative study of the living units could reveal similarities and differences, hence providing the basis for an analysis of the underlying structure of the built environment. Specific combinatory patterns may generate numerous specific patterns, but they are similar in the way they operate: the pattern language. At this level of analysis, a comparative study of different building processes could be conducted to define the differences and common processes. The research uses this approach to understand the patterns of events that keep happening, which are always interlocked with certain geometrical patterns in the space.

c. Space Syntax

In a vernacular environment, the design of the spatial layout of a house may be contingent on the nature of activity, traditional values and customary constraints, and norms. These characters reflect the social patterns of its user, which are intimately connected to the spatial parameters of the house. Hillier and Hanson (1984) describe how spaces organize social interaction and can be interpreted in many ways, from an abstract to a more systematic approach. Analysis of spatial configuration is a systematic approach to understanding the relation between space and society. The space syntax method focuses the attention on the explanation of spatial configuration, which is the main concept in the detailed examination of the internal structure of a house (or any building and urban space). Hillier (1984) describes that the definition of spatial configuration is the relations between two or more spaces that take into account all other spaces in the system. The two key elements of the spatial layout are the convex space and its access. The convex space is defined as the single space that corresponds to people's spatial experience, and access is defined as occupants' movements from a space to other space. The space syntax theory argues that people's spatial perception, act of moving through or using the space, are directly affected by the spatial organization of the spatial

system. The space syntax approach considers each space a discrete unit and quantifies its hierarchical position within the given network. The measurement of each discrete part has the ability to indicate the magnitude of movement passing through the discrete unit and, furthermore, the types of activities they attract (Aleksandrowicz, 2018; Sheng et al., 2018; Topcu, 2019; Yoo & Lee, 2017; Hillier, 1999).

The patterns of domestic space arrangements, the arrays of objects in the house, and the distribution of activities are the material traces of social phenomena that can be observed. Hanson (1998) explained that space syntax analysis could decode spatial configuration, object arrangements, and people's activities to interpret social and symbolic information. Her investigation of large samples of house plans shows that the space syntax approach could provide spatial descriptions that are independent of personal opinion and personal judgments about meanings. The research uses the space syntax method to look deeper into the transition of traditional religious principles from the origin house to the house in urban areas, interpreting the message from the reading of spatial structure. This phase of analysis examines the spatial patterns, the syntactic values, and the use of the spaces of the houses from different contexts. The benefit of the space syntax method in this study is its ability to describe the invariance that exists and explore the changes of the spatial types, in terms of their spatial configurations, by comparing the different case studies.

1.3 Hypothesis

People living in a dense urban environment may not have enough space to facilitate all of their belief system's architectural expressions. A house that is built on a land plot that has a smaller surface area may not be able to include all the necessary architectural components that would express the people's traditional belief system. However, even though the house does not retain all the

architectural rules of traditional architecture, the religious tradition persists. These urban vernacular houses respect and retain some degree of elementary rules of their belief system's spatial organization, which concerns the deepest layer of their cultural background.

Within dense urban vernacular settings, the study hypothesizes that the sacred is manifested through overlaps between the sacred space and the space for the profane/non-religious space. These spatial overlaps enable the manifestation of religious principles in the minimal spaces that are self-built in much denser spaces. The manifestation of religious traditional values may vary from one genealogical group to another. Hence, the dissertation develops the hypothesis:

1. Resistant to change, religious tradition is manifested in the design, construction process, and the built form of vernacular architecture. In very dense environments like the inner-city kampung, spatial ambiguities exist and allow the sacred spaces to overlap with the profane spaces, allowing the small spaces to have multiple uses.
2. As the space becomes more crowded, some erasures of their religious architectural expressions may be allowed, and this number of erasures increases as the density becomes higher. Each domestic unit may have different degrees of translation, contingent on the lineage of familial genealogy and relation to the origin house.
3. Despite the differences in each domestic unit in the vernacular urban environment, the study may show that there is a set of architectural similarities and differences that show agreeable spatial adaptation. The research hypothesizes that some kind of unwritten agreement regarding the adequacy of the belief system's architectural expressions that appear in different density levels could be described.

The phenomenon may happen because the religious tradition is so strong that it survives the transmission of ideas from the traditional village to the dense urban vernacular environment, which is very different in form, but has similarities in the vernacular process which is making it and hence become a medium for persistence of religious patterns. The presence of spatial ambiguities makes possible the manifestation of Hinduism in the dense urban vernacular environment in Denpasar, although the urban vernacular environments are much denser and not as organized as the traditional-rural villages or the planned parts of the city. Each genealogical group reflects the connectivity of their familial temple system and may create varieties of belief system's architectural expression in urban areas. Hence, the relation between the urban house to the parent's house (or we can call it the original house) plays an essential role in the system of decision making of the adaptation and innovation process of the Balinese urban house.

1.4 Research Questions

The research seeks to analyze the dynamic of innovations adopted by the inhabitants through exploring research questions that also reflect the phases of the research. Research question 1 acts as the background investigation, while research question 2 and research question 3 act as a core investigation of the research.

Research Question 1

The first phase of the research is to analyze the traditional domestic model to identify the elements that structure the architectural expressions of the belief system, using the ethnographic approach. The researcher recognizes that this model of the traditional domestic model is not a frozen architectural model, nor an object that does not go through changes over time. It is a result of constant refinement over time, in which the elements have been accepted, codified, developed, and

transmitted from generation to generation. In this first phase, it is important to note that this traditional domestic model is not the core focus of the research, but it will enable the research to observe the changes that may occur in the dense urban environment.

What are the modes of structuring the space of Balinese traditional domestic model that express their belief system? What are the production and reproduction mechanisms of this traditional model of built forms?

Research Question 2

This phase looks at the patterns of houses in the dense urban area and their familial mother houses. Investigating the spatial changes, this phase compares the houses in dense urban areas to their origin houses. The second phase of the research focuses on pattern language and space syntax analysis of both the village houses and the urban houses to describe the changes of houses and their environments.

What is the nature of permanency, erasures, and adaptations that are developed in the dense urban vernacular environment? What persisted and erased within each genealogical group, as we observe the ceremonies, architectural attributes, the actors, and agencies of their building production? What are the mechanisms of decision-making? What are the patterns that appear in each genealogical group? What characteristics occur in each genealogical group?

Research Question 3

The final phase of the research is to describe the dynamics of innovations through the next comparison study. The idea is to compare the patterns from different genealogical groups.

What similarities and differences characterize the translation of religious tradition in the dense urban vernacular environment? What reductions of the belief system's architectural expressions are allowed as the density increases? What is the nature of this inclination toward a particular characteristic of behavior in what people keep and what people allow to change? What is the nature of the sufficient amount of belief system's architectural expression? Can we describe the sufficiency of belief system's architectural expression in relation to the increasing density?

1.5 Definitions

Bhuana Agung:	"Great universe"/macrocosm which initiates all life, the resting place of God Almighty.
Bhuana Alit:	"Small universe" which refers to the human body with the atman (human soul) as its sovereign.
Bhur Loka:	The lower world. In the context of spatial arrangements, it connotes the position of the function that resembles the lower world. The world symbolizes the existence of evil spirits that may tease humans to abandon the dharma.
Bwah Loka:	The middle world. In the context of spatial arrangements, it connotes the position of the function that resembles the middle world. The place for humans and the material world.
Catur Purusa Artha:	Four steps of life: dharma, artha, kama, moksha.

Catuspatha:	The center of the universe, the intersection of the cosmological axis: kaja-kelod and kangin-kauh.
Desa-Kala-Patra:	A Balinese wisdom that different place, time, and context may produce different agreements/ decision/ design.
Jero-Jaba Tengah-Jaba:	The three zones of a Balinese temple. The entrance is the less sacred and the deepest area (jero) is the most sacred area.
Kaja-Kelod:	Kaja = mountainward/ higher place, and Kelod = seaward/ lower place.
Luan-Teben:	The concept of upstream and downstream, used to assume the sacred and non-sacred areas.
Natah:	Central courtyard surrounded by buildings. The courtyard facilitates daily activities and religious rituals.
Pengurip:	A plea to the presence of the Almighty God to kindly infuse spiritually the offerings, buildings, or newly completed objects to obtain safety under the protection of Sang Hyang Widhi, the Almighty God.
Rwa Bhineda:	Dichotomy, two things that are opposite. Rwa (two) Bhineda (differences), defined as the balance of the opposite elements. The opposites could be the sky and the earth, mountainward and seaward, high and low, etc.

- Sanga Mandala:** Sanga (nine) Mandala (area, container, place) is defined as the manifestation of the nine gods in keeping the balance of the universe: cosmological orientation. Sanga mandala is a combination of Tri Angga and Catuspatha, dividing the space into nine zones.
- Sikut:** The measurements that are being used in designing Balinese traditional building.
- Swah Loka:** The upper world. In spatial arrangements, it connotes the position of the function that resembles the sacred/ upper world. This sacred world is the place of the Gods (Deva-Devi).
- Tat Twam Asi:** I am you.
- Tri Angga:** The three division of Angga (body): Head (utama angga), body (madya angga), and feet (nista angga). The environment is a miniature of the universe, and space is divided according to the importance of rituals and cosmological orientation.
- Tri Hita Karana:** Three sources of happiness. Tri (three) hita (happiness) karana (source), defined as the three sources of happiness. Happiness is created through the balanced relations between (1) Atma (soul), (2) Khaya/ Prana (energy), and (3) Angga (container or body that consists of Panca mahabhuta/ five elements of the universe). The three source of happiness is translated to Tri Mandala; a division of three areas (palemahan, Lebu, and Teba).

Tri loka/ Tri Bhuana: Three Worlds/ Three dimensions of the world (**Bhur Loka**/ the lower world, **Bwah Loka**/ the middle world/ the realm of human, **Swah Loka**/ the upper world/ the realm of Gods).

Tri Mandala: Three parts of an area.

Undagi: "*u* = prominent/ Siwa; *nda* = fundamental; *gi* = body", Balinese traditional architect, master carpenter as the highest authority in Balinese architectural treatises; also used to refer to men of unquestionable wisdom.

1.6 Attribution of Coauthored Material

Section 5.5 of Chapter 5 contains previously published coauthored material and coauthored by Feni Kurniati.

Chapter 2

The Vernacular and Balinese Dwellings

At the core of this dissertation is an exploration of the ways in which belief systems are manifested architecturally and spatially in urban vernacular contexts. It delves into the ways belief systems manifest in architectural and spatial norms within the dense and urban settings of Bali, highlighting how traditional rural values adapt and persist amidst urbanization. The study probes the transformation of traditions from the spaciousness of rural environments to the constraints of the urban context, examining how people in the city navigate the spatial limitations that challenge the complete architectural expression of their beliefs. The transition is marked by a necessary innovation in spatial strategy, where self-built vernacular houses in the city may lack the space to fully embody all aspects of a traditional belief system. Yet, within these constraints, the core values of religious traditions manage to survive, subtly woven into the fabric of urban vernacular architecture. Though these urban homes may forgo some traditional architectural expressions, they still honor the fundamental principles of spatial organization inherent to their cultural foundations.

To anchor this inquiry, this chapter dissects three pivotal themes: the persistence of traditional practices, the intersection of the sacred and the profane in vernacular architecture, and the significance of genealogy in Balinese society. These themes are crucial for understanding the continuity and adaptation of religious values within the built environment. By navigating these interconnected themes, the study reveals the layers of meaning embedded in the vernacular architecture of Bali, reflecting a society where the ancestral past and the exigencies of modern living are in constant dialogue.

2.1. Persistence of Sacred Tradition in Vernacular Building

In his exhibition and book, *Architecture Without Architects: A Short Introduction to Non-Pedigreed Architecture* (1964), Rudofsky highlights constructions where specialized designers play no role. His exhibition of unique, common, anonymous buildings significantly expanded the architectural discourse by challenging conventional perceptions of architectural history. Rudofsky's efforts to dismantle the traditional narrative have fostered a deeper appreciation for vernacular architecture and its place within the broader architectural landscape. In the following years, Rudofsky's work continued to shape the vernacular architecture field, sparking a renewed interest in the relationship between architecture and its contexts.

Within a similar era to Rudofsky, folklorist Henry Glassie introduced a different approach to vernacular architecture. Instead of simply admiring these structures, Glassie suggested they serve as a lens through which to explore broader themes. He mentioned that the true value of studying vernacular architecture lies in understanding the social, cultural, and environmental forces that shaped it. Through his work, Glassie rejected the myth that circulated around the folk buildings and illustrated that they are the outcome of thoughtful and sophisticated design processes embedded within a web of linguistic and philosophical analogies and contextual complexities. His work steered the vernacular architecture discourse towards a deeper exploration of the underlying meanings and cognitive frameworks that inform architectural practices.

The meaning of tradition was broadly contested in the study of the built environment. Yi-Fu Tuan (1989) mentions that the most crucial aspect of tradition is constraint. As a result, the characters of traditional societies are shaped by their limited number of choices. Religious customs, culture, resources, and climate play the role as the constraining factors that bind their space. However,

Tuan's description fails to explain the process by which tradition persists in societies. Noticing that 'tradition' within the study of the built environment is seldom defined, Rapoport (1989) created a list of attributes to test the traditionality of the built environment. His argument is that the list of attributes would be helpful in the identification of the traditional environment (or identifying which environment is not traditional). Abu-Lughod (1992) argues that traditionality could be seen in the process and not necessarily in the product. She states that 'traditional' is a collective process and is characterized by three collectivities: (1) collectively built, (2) collectively interpreted, and (3) collectively consumed. These commonalities characterize tradition and therefore we could expect to find similarities within processes of making and consuming built environment.

Paul Oliver further advanced this anthropologically oriented perspective. Oliver (1997) states that vernacular architecture has its roots in the people's traditions. His work features insights from 750 contributors across 80 countries, expanded on Rudofsky's observations by emphasizing the processual knowledge involved in construction and the intergenerational transmission of building skills. In Oliver's description, the tradition expresses the spirit of the regional communities. Oliver observes the transmission of tradition and mentions that understanding the concept of 'handing down' would provide a better understanding of the traditional environment. He argues that the materials, the artifacts, do not define the tradition. The process of 'handing down' constitutes the definition of tradition. Oliver's explanation corresponds to Dobrowolski's study on the process of transmission, that the past provides a pattern for living and the model for the community's action. However, Dobrowolski mentions that there would be a decreasing collective memory within the transmission of tradition that provides a way for changes and replacements. Some memories will disappear while some other memories persist over time (Dobrowolski in Oliver, 1989). According to

Oliver, these persisting memories influence and may be observed in the spatial occupation and utility, space use, and the details and ornament.

In 2001, Alsayyad added that there is a need to be critical in observing tradition that persists, as it is not always an authentic product of a society. It may present as cataloged, packaged content, a commodity of consumption, particularly within the context of tourism. In Alsayyad's opinion, there is a need to re-evaluate tradition's utility as a repository of valuable ideas to be handed down and preserved (2004). In the era of globalization (and within the context of urbanization), Jacobs (in Alsayyad, 2004) mentions that tradition re-emerges with new mechanisms for its transference. Within her formulation, tradition and modernity are co-dependent, and there is circulation of tradition within modern structures. The traditional authority still exists and performed; the traditional structure has extended to new forms of dwellings and built forms or to emerging new architectural spaces.

Furthermore, echoing Oliver's sentiments, Marcel Vellinga (2006) argued for the equal valuation of vernacular architecture alongside more recognized forms such as palaces, cathedrals, and mansions. His perspective advocates for a broader acknowledgment of vernacular architecture as a genuine architectural expression of the societies and cultures from which it originates. He also argues that the efforts to safeguard historic (or traditional) buildings from modern change and preserve them in their 'authentic' condition may have constrained the scope and development of vernacular architecture studies. He argues that there is a need to understand the dynamic change and adaptation of traditions to the context of the present and future through human agency. The idea is to anticipate the tradition (within vernacular architecture) of the coming times by observing the vernacular architecture of the present and avoid confining the tradition (and vernacular architecture) in historical observations.

Moving away from the early perspectives on vernacular architecture, which often portrayed it as static, unchanging field, previous discussions have highlighted a significant shift in how we understand these traditional structures. Early narratives tended to view tradition as a rigid blueprint, inadvertently minimizing the creative agency and adaptability of the communities that inhabit and sustain these environments. However, the contributions from scholars mentioned earlier, notably Paul Oliver and his contemporaries, have underscored the dynamic nature of vernacular architecture. This evolving understanding emphasizes that vernacular architecture, far from being fixed, is a subject of continuous transformation and reflects the shifting needs, technologies, and cultural practices of the societies that create and use their spaces.

Vernacular architecture and the idea of self-help are essential in limiting the scope of this study. Vernacular architectures are customarily owner-or community-built, related to environmental context, built to specific needs, and accommodating the values, economies, and ways of life of the cultures that produce them. Oliver (1987) adds that they may be adapted or developed over time as needs and circumstances change. Furthermore, the importance of self-help or community-based building is emphasized in the definition of vernacular architecture, which is closely related to how it is “designed” and “built” (Rapoport, 1969). Davis (1999), Oliver (2006), and Rapoport (1989) stress the significance of the vernacular and self-built architecture by mentioning that most buildings and environments that are built were not designed by architects. These commonly described traditional environments (or environments that embody traditions) represent the human ingenuity in providing the physical container for their activities and contain the record of the relationships between people and people, people and things, and things and things that are potentially valuable. In this regard, the only valid approach in studying traditional environments is to analyze concepts and seek the attributes that persist (Rapoport, 1987).

Oliver (1987) stressed the importance of incorporating tradition into the reading of the built environment. He mentioned that there could be no change without tradition; tradition provides the matrix within which changes in the built environment occur. Waterson (1990) mentions several themes that need to be observed, including the social relations (including kinship and social patterns), symbols and the manifestation in space, cosmology, and rituals, and physical arrangements and construction. In her study in Indonesia, Waterson states that the dwelling is a microcosm (Waterson, 1990), and the order of the world is reflected in its layout, structure, and ornamentations. She adds that there is a symbolic interplay between these microcosms, and there is a possible symbolic opposition that contradicts each other. Waterson argues that the spaces are never neutral because they always carry a symbolic load, which corresponds to Rapoport (1982) that users personalize the territories by creating the relations of physical spaces and symbolic meanings. To be more specific, regarding the study of traditional dwelling in the Indonesian context, Tjahjono (1990) believes that the plan in Indonesian vernacular dwelling follows particular patterns that reflect indigenous belief and ritual practices, and that duality in the dwellings can be found in the seen and unseen experience of reality. However, he did not correlate the study to the production of vernacular spaces in urban areas.

According to Pavlides and Hesser (1989), religious tradition may be one of the traditions most resistant to change and acts as a repository for traditional cultural elements in times of profound social change. From this statement, my research assumes that the connection between this resistance and vernacular architecture is essential. This statement might be related to Oliver's statement that the establishment and the maintenance of a tradition requires the passing of its essential elements from the group to their successor (Oliver, 1987).

In a religious, traditional society (a society that embodies religious, traditional values), the myth embodies metaphysical doctrines and inspires the acts of building and artifacts (Khambatta, 1989). This dissertation then defines the sacred as the elements that are subject to the strong influences of religion. The sacred may appear in the elements of act and behavior, architectural form, and functions. The process and the physical character of the environment inhabited by religious communities provide the stage for a complex range of activities, including the rituals and religious practices (Macrae, 2002). Some religions may exclusively be practiced in the domestic and public space, and various sacred features and functions may be present in several movable or permanent elements that serve religious purposes. The research might recognize the traces of religious tradition as an essential element in the fixity and persistence in plan, the precedent in design, the techniques and processes of construction, and the use of the spaces in accordance with the corresponding customs in both rural and urban areas, despite the challenge of increasing density.

2.2. Arguments of Genealogy in Balinese Society

The anthropological works of Mead, Geertz, and Waterson have significantly illuminated the intricacies of Balinese culture, underscoring the pivotal role of kinship and sacred practices in anchoring the Balinese to their ancestral origins. These bonds manifest spatially and behaviorally, influencing both domestic and urban environments. This aligns with the findings of Lancret (1997) and Parimin (1986), who highlight the existence of direct lineage connections between dwellings within a family line, thereby establishing a genealogical hierarchy of homes. This process ensures that as a new house is constructed, its spiritual and familial ties to the ancestral house remain intact, with the temple of the original house serving as the spiritual foundation for the new dwelling.

As families expand and spaces become congested, the formation of new houses follows a similar genealogical order, creating a network of houses that, while individually evolving, maintain a sacred connection to the “origin point” temple. Eiseman (1989) notes that this intricate web of familial and spiritual ties culminates in a compound of dwellings, each linked by collective worship practices and a network of micro-temples, all oriented towards the ancestral temple. This pattern, with variations across genealogical groups, forms the underlying structure for residential development across Bali Island, albeit with notable exceptions in palatial and Brahmanical architectures, which are imbued with deeper ceremonial and political significance.

Field observations and interviews reinforce the notion that within each religious lineage, the architectural expressions of belief—spanning spatial organization, construction techniques, functional rules, and ornamentation—are most densely concentrated in the ancestral home. According to Budihardjo (1995), subsequent generations of homes, while tethered to the ancestral house, may exhibit a broader architectural latitude. These later constructions are permitted to diverge in architectural style, provided that they uphold the essence of the original home’s design, thereby preserving the unity and identity of the socio-religious group. The practice of returning to the ancestral temple for rites and ceremonies further solidifies the communal bond, despite the architectural diversity of descending houses. Moreover, the Balinese approach to architectural evolution allows for innovation, adaptation, and modification of traditional architectural expressions, especially in areas peripheral to sacred spaces. These transformations are more pronounced in the newer generations of houses, offering a glimpse into the dynamic interplay between tradition and modernity within Balinese architecture. Such adjustments, while maintaining a respectful nod to tradition in the original house and its temple, reflect the community’s adaptive strategies in navigating contemporary architectural and social landscapes.

Chapter 3

Research Inquiries

The research aims to provide a detailed picture of how the architectural expression of a strong religious tradition may adapt within the dense urban vernacular environment. The second aim is to argue that comparing several different genealogical groups' architectural adaptations may provide a deeper understanding of the ambiguous spatial practices of traditional religious values in dense urban vernacular environments. Detailed analysis of the phenomenon in genealogical groups from the same religious tradition could improve the understanding of urban vernacular architecture by investigating similarities and differences regarding their architectural continuity and change.

Methodologically, a mix of ethnographic approach, pattern language, and space syntax had not been used to explain how the different genealogical groups of urban vernacular society in Bali adapted their belief system's architectural expressions to the densified environment, and this point is one main contribution of the research. The purpose is to validate the reliability of this mixed-methods approach in studying the houses in the dense urban vernacular environment and observing the innovation that occurred as they experienced complex constraints related to urbanization, customary cultural order, and their system of worship.

The unwritten agreement regarding the adequacy of the belief system's spatial expressions that appeared in different levels of density manifested in patterns that illustrated the religious tradition's architectural manifestation that persisted through time and survived the spatial limitations. This persistence indicated valuable and resilient spatial practices that should be considered as guidance for designs and developments of new environments.

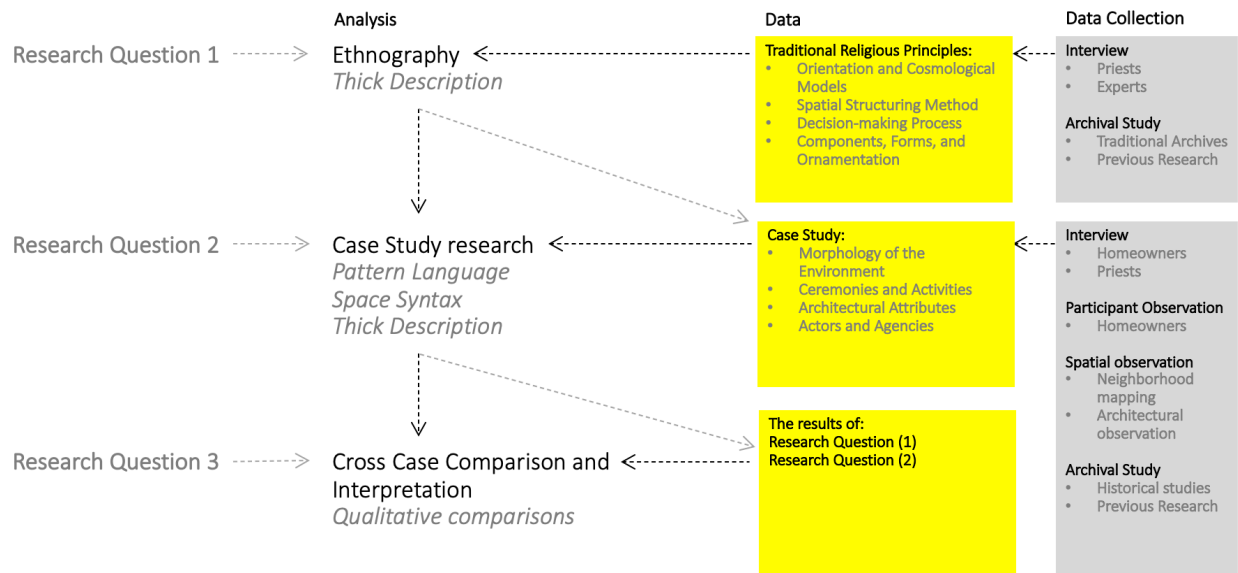
3.1 Methodologies: Mixed Method Research

The research used the mixed-method research model that contained both qualitative and quantitative approaches. (1) The ethnographic approach was used to enable the researcher to investigate the inhabitants' cultural determinants of their relationship to architecture. Some parts of this approach required some interaction (participation) of human subjects. (2) The next approaches were pattern language analysis and space syntax analysis. As an architectural study, this research was also guided by a deep awareness of building typology and morphology to investigate the patterns of domestic architectural space and urban forms. This second approach did not require human subjects' participation. To investigate the architectural expressions of the belief system, and to be able to conduct a comprehensive comparison, the research set four themes as the foundation of the study:

- a. Orientation and Cosmological Models as the Guidance System
- b. Spatial Structuring Method
- c. Decision-Making Process
- d. Components, Forms, and Ornamentation

The first phase of the research involved analyzing the model of traditional domestic architecture to identify the elements that structured the architectural expressions of the belief system. The focus was on ethnographic research, which included reviewing previous research, documentation, and traditional documents regarding architectural rules, and conducting interviews with experts in Balinese traditional building construction (scholars and priests). This process aimed to revisit the traditional knowledge of building production repositories.

The second phase involved investigating architectural similarities and differences within a genealogical group as it faced the constraints of increasing density. The first part of this phase was the ethnographic analysis, which examined the similarities and differences in adaptation, persistence, and erasures of the belief system’s architectural expressions within familial groups that come from similar origins. This part of the research included interaction with house owners (interviews and spatial observations). These ethnographic data were organized using qualitative software (Dedoose software). The second part of this phase analyzed the data using pattern language and space syntax software and conducted the first stage of comparative study between the houses in dense urban areas and their origin houses within the same genealogical group. The narratives from the interviews corroborated the results of pattern language and space syntax analysis. Within each familial group, the urban house was compared to the rural house, and the urban village structure was compared to the rural village structure.



Scheme 1. Analysis and Data Collection

The third phase of the research involved the second stage of a comparative study focusing on the similarities and differences between different familial groups. This comparison was expected to reflect the dynamics of innovations and identify patterns in the adaptation, persistence, and erasures of the belief system’s architectural expressions. Persistence reflected significant spatial structuring modes that act as the meaningful core of the belief system’s architectural expression, while the increasing erasure of the architectural expressions indicated the degrees of negotiable architectural components that have a flexible space-cultural relationship in the dense urban vernacular environment.

3.2 Materials and Data Collection

The first phase of data collection focused on answering the first research question. The primary sources included interviews with experts (scholars and priests), spatial observations, and mapping activities. The secondary sources comprised traditional religious documents, previous research, architectural archives, and construction documents. Table 1 lists the topics, data, and data sources that are related to the Balinese traditional religious principles:

Topic	Data	Source	
		Primary	Secondary
Orientation and Cosmological Models	Guidance Systems Nawa Sanga	Experts (scholars and priests)	Traditional Religious Document, Previous Research
	Cosmological Models Tri Hita Karana, Sanga Mandala	Experts (scholars and priests)	Traditional Religious Document, Previous Research
Spatial Structuring Method	Directions of Space Functions built in the center and periphery of the compound, and the relation with surrounding sacred elements.	Experts (scholars and priests), Spatial Observation, Mapping	Traditional Religious Document, Previous Research, Architectural Archive
	Dimensions of Space	Experts (scholars and priests),	Traditional Religious Document, Previous

	Dimension and Proportion of perimeter wall, entrance door, location of buildings, and proportion of the pavilions.	Spatial Observation, Measurements	Research, Architectural Archive
	Measurement system Units of Measurement	Experts (scholars and priests), Observation, Measurements	Traditional Religious Document, Previous Research, Architectural Archive
Decision Making Process	Before the Works	Experts (scholars and priests)	Traditional Religious Document, Previous Research, Construction Documents
	During the Works	Experts (scholars and priests)	Traditional Religious Document, Previous Research, Construction Documents
	After the Works	Experts (scholars and priests)	Traditional Religious Document, Previous Research, Construction Documents
Components, Forms, and Ornamentation	Architectural Data Maps, Architectural and Site Plans, Details and Ornamentations	-	Architectural Archives and Documents

Table 1. Data and Sources

The first phase of data collection provided the materials to answer the first research question, which aimed to uncover (1) the traditional modes of structuring the traditional religious space and (2) the production and reproduction mechanisms of the traditional built forms. This phase involved conducting interviews with experts (scholars and priests). The researcher interviewed three scholars and two priests. Each interview lasted approximately two hours of conversation and was scheduled at the convenience of the interviewees. During the interviews, the researcher focused on the

traditional knowledge of Balinese traditional spatial principles. The conversations covered three main topics: Orientation and cosmological models, spatial structuring methods, and decision-making process. Audio recordings were made during all interviews to ensure accuracy and completeness. The researcher personally conducted all the interviews, ensuring consistency and depth in the data collection process.

Table 2 lists the topic, data, and data sources of the second phase of data collection:

Topic	Data	Source	
		Primary	Secondary
Orientation and Cosmological Models	Guidance Systems Nawa Sanga	<ul style="list-style-type: none"> • Interviews: House owners • Spatial Observation: House plans, site plans 	<ul style="list-style-type: none"> • GIS maps • Traditional Religious Document
	Cosmological Models Tri Hita Karana, Sanga Mandala	<ul style="list-style-type: none"> • Interviews: House owners. • Spatial Observation: House plans, site plans 	<ul style="list-style-type: none"> • GIS maps • Traditional Religious Document
Spatial Structuring Method	Directions of Space Functions built in the center and periphery of the compound, and the relation with surrounding sacred elements.	<ul style="list-style-type: none"> • Interviews: House owners. • Spatial Observation: House plans, site plans 	<ul style="list-style-type: none"> • Traditional Religious Document • Architectural Archive
	Dimensions of Space Dimension and Proportion of perimeter wall, entrance door, location of buildings, and proportion of the pavilions.	<ul style="list-style-type: none"> • Interviews: House owners. • Spatial Observation: House plans, site plans 	<ul style="list-style-type: none"> • Traditional Religious Document • Architectural Archive
	Measurement system Units of Measurement	<ul style="list-style-type: none"> • Interviews: House owners. 	<ul style="list-style-type: none"> • Traditional Religious Document

		<ul style="list-style-type: none"> • Spatial Observation: House plans, site plans 	<ul style="list-style-type: none"> • Architectural Archive
Decision Making Process	Before the Works	<ul style="list-style-type: none"> • Interviews: House owners. 	-
	During the Works	<ul style="list-style-type: none"> • Interviews: House owners. 	-
	After the Works	<ul style="list-style-type: none"> • Interviews: House owners. 	-
Components, Forms, and Ornamentation	Architectural Data Maps, Architectural and Site Plans, Details and Ornamentations	<ul style="list-style-type: none"> • Spatial Observation: Sketch, Visual recordings, House plans, site plans 	<ul style="list-style-type: none"> • Traditional Religious Document • Architectural Archive

Table 2. Data and sources of the second phase data collection.

The second phase of data collection required spatial observations and interviews. The spatial observations focused on both the house and the public spaces of the village. For the houses, the researcher sketched the house plans, noted important architectural details, and made visual recordings. The spatial observation of the public space of the village concentrated on identifying the locations of sacred elements within the public spaces of the village. Interviews with the homeowners were conducted to gather the narratives and oral histories of their houses. These interviews also explored the decision-making processes involved in the construction of the houses, from the initial planning stages through to completion.

The data collection involved participants through open-ended interviews and spatial/architectural observations. The researcher conducted interviews with the study participants with their consent. These interviews took place at each participant’s house or at another location preferred by the

interviewee and were divided into two parts. During the first part of the interview, the researcher focused on the participant's affiliation with their temple system and their understanding of traditional Balinese Hindu architectural principles. The researcher asked questions related to participant's knowledge and experience regarding:

1. Balinese Hindu's Orientation and Cosmological Models as the Architectural Guidance System
2. Balinese Hindu's Spatial Structuring Method
3. Decision-Making Process in Design, Construction, and Daily Use of the House

During the second part of the interview, the researcher focused on traditional religious activities within the participants' houses. The researcher inquired about the participants' daily traditional religious activities and the architectural attributes associated with each activity. Audio recordings were made during the interviews, and the researcher conducted all interviews. Each part of the interview (first and second) lasted for two hours, with the schedules determined by the interviewees. In total, the interview took four hours of the participant's time.

During the spatial observation, the participants were asked to identify and describe the locations and architectural attributes of the traditional religious activities mentioned in the interview. The goal was to document the application of Balinese traditional principles in the architectural spaces and elements. There was no questionnaire or any data collection instrument for the participants to complete. Instead, the researcher took notes, measured, and documented the house plan and each room in detail, with photography and video recordings of the spaces. This approach ensured that the researcher, a trained architect, could obtain precise and standardized documentation of the house. The researcher collected information about the location/village, site, floor plans, formal ordering systems, unique features, and other general data. A room-by-room survey recorded the function,

changes in floor levels, forms, furniture, decoration, openings, and types of boundaries. The focus was on architectural components, forms, and ornamentation related to traditional religious activities. The spatial observation took four hours to complete. The interview recordings were transcribed, and the measurement data and documentation were used to develop CAD drawings. The spatial data were analyzed using DepthmapX software. The spatial observation of the house was conducted once, taking approximately four hours. The interview data contributed to the qualitative analysis of the recurring patterns and helped explain the space syntax analysis.

The information collected for this research is used in the analysis of the persistence and erasures of traditional principles in the urban vernacular environment. The names of the homeowners are not disclosed in the dissertation, journal articles, or conference presentations related to this study. Additionally, Identifiers were removed from identifiable information collected in this research to ensure the confidentiality and privacy of the participants.

3.3 Analytical Methodologies

The researcher used qualitative analysis to address research question (1). For research questions (2) and (3), a mixed-method analysis was employed. Qualitative thick description and pattern language analysis aided in interpreting the space syntax analysis that incorporated a quantitative approach.

(a) Interpretive Anthropology

The ethnographical approach used in this research was inspired by Geertz's interpretive anthropology, since the investigation of the belief system's architectural expressions is strongly related to symbols and interpretation. A thick description serves as a construct for describing the phenomenon and the interview results. Thick description contains analysis, implying that the analysis is tied to description, but it is deep because it goes into the meaning. This web of meaning is

not locked in people's mind, they are (at least the symptoms) visible in symbols, spatial structure, forms, details, decorations, or in behavior. Consequently, the research is grounded, focusing not only on how the physical environment is structured but also on observing and interpreting people's actions (an action-oriented approach)¹. Another reason for employing thick description (and not bypass the interpretive phase into rules) is because rules exist, but they could be broken, and there may be numerous variations of them. The researcher anticipated that the result may reflect negotiations and variations of architectural expressions within the dense urban vernacular. The output of this phase supported the pattern language and aided in interpreting the space syntax reading in the next phase of the research.

(b) Pattern Language

The study investigated the conditions that occurred frequently in the urban houses and in their parent houses, concerning architectural forms and their relationships which created spatial experiences. In this investigation, the researcher divided the observation into four levels of physical scale for each house, progressing from a large scale (patterns of the entire house), to a middle scale (patterns which relate the groups of spaces), a small scale (patterns of individual spaces or rooms), and the smallest scale (patterns of walls, ceilings, and floors). The patterns were written in a common format, using system brief names, to facilitate cross-references between patterns. In general, the discussion of each pattern started with its relation to the related pattern at the higher

¹ Geertz (1973), in *Interpretation of Cultures* uses the distinction between a “wink” and “blink” as an example of his analysis because a blink is a wink. A blink is a biological description of a twitch in the eye (that does not contain hidden meaning). However, within that same term, there is “wink”, that could contain very different meanings. It could be a flirtation, or it could contain many other things in different cultures. Geertz describes that even in microscopic things, a researcher should be mindful of possible layers of meaning, so that research is not only focusing on how different the research objects are. The approach rejects other theories that are too abstract (cultural universals) and not focusing on the meaning of description. Because, in Geertz's opinion, these theories do not tell what is essential to actual living humans; what is important to them?

scale, followed by an explanation regarding the relationship with other patterns at the same scale. The principle in describing the patterns was about providing the essential features of the patterns, the purposes of the patterns, and any possible relation to a specific pattern in Alexander's pattern language. The identification and description of a pattern were presented with plans and photographs of its particular use in each house. Patterns that appeared in more than one house were accompanied by examples from every house. At the end of each pattern description, the indication of the relationship of the pattern to smaller scale patterns was explained, particularly with patterns that were considered as their sub-patterns.

(c) The layout of the houses was investigated using space syntax analysis, specifically with DepthmapX software. By breaking the system into a compilation of discrete units, the researcher labeled each discrete unit with certain measurements. Each discrete unit could be assigned to different groups of people and their activities, different rules and behaviors, or specific symbols and cultural charges. This phase of analysis dealt with the layout of the buildings to examine their spatial configurations. The relations between spaces were illustrated by converting the site plan and the plan of the building into a morphological diagram. Each room/space is conceptualized as a point connected to other points to represent spatial accessibility. A root space or a space of origin was used to measure the level of spatial depth in the system, so that depth value could be assigned to each point (space)². In other words, these depth values reflected the minimum number of movements between points that is needed to reach the destination from the point of origin. All spaces that had the same depth values are horizontally arranged. Besides the depth level, the analysis

² In space syntax, depth measures the minimum number of spaces that must be crossed to get from one point to another. Spatially 'deeper' areas have all other spaces farther to them and are less integrated.

investigated three other syntactical measures that acted as the key properties of a system: (a) connectivity values, (b) integration values, and (c) choice values.

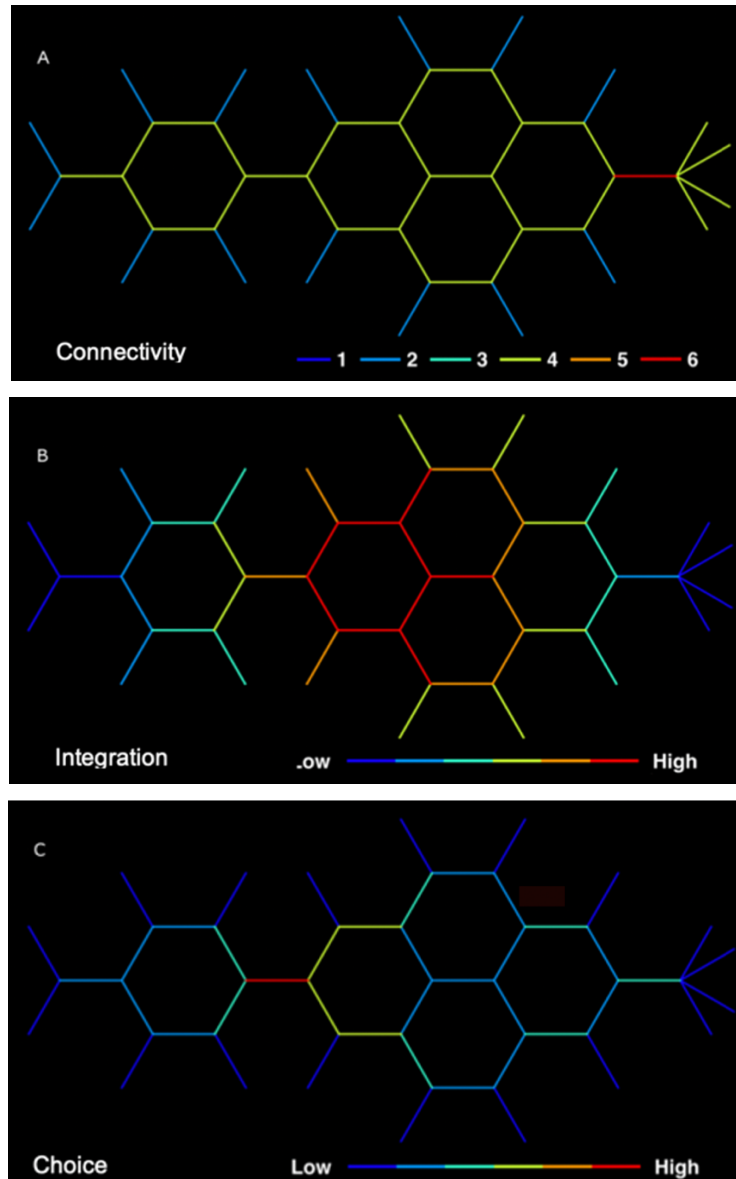


Figure 1. Illustrations of the three centrality measures in a network. Sc: Yoo, C. and S. Lee (2017).

The Figure 1 indicates three key measures that characterize the spaces within a network. The three illustrations show that different discrete parts have the highest value (indicated by the red color). In illustration (A), the discrete part that has the highest value (connectivity) is the part that has the most

parts connected directly to it. In illustration (B), the discrete parts that have the highest value (integration) are considered to have the highest closeness to other discrete parts in the system. In illustration (C), the unit that has the highest value (choice) is the discrete part that has the highest probability of being traveled from and to any point within the system (Yoo & Lee, 2017). The analysis results in each study case were compared to analyze the similarities and differences between the case studies. The comparisons showcased the similarities and differences that characterized the translation of religious tradition in the dense urban vernacular environment, the reductions of the belief system's architectural expressions that are allowed as the density increases, and the nature of the sufficient amount of the belief system's architectural expression.

Comparison 1 – Pattern Language

The first comparison was the comparison between the pattern language of the rural and urban case studies in each genealogical group. This comparison aimed to look at the similarities and differences of the rural and urban house patterns. The results of the interpretive anthropology and pattern language analysis were included in the comparison and categorized based on four levels of scales: (1) patterns of the village, (2) patterns of the entire house, (3) patterns that relate the groups of spaces, and (4) patterns of individual spaces or rooms.

Comparison 2 – Syntactical Measures

The second comparison focused on analyzing the syntactical measures of the rural and urban case studies in each genealogical group. This second comparison aimed to identify the similarities and differences between the syntactical measures of rural and urban house. The components of this comparison are (1) connectivity values, (2) integration values, and (3) choice values.

Themes Contributing to Adequacy in Spatial Religious Expressions

This phase involved organizing ethnographical data using Dedoose to identify themes contributing to the unwritten agreement regarding the adequacy of the belief system's architectural expressions. The interviews were meticulously analyzed, leading to the identification of ten common themes indicative of adequacy, defined as sufficiency for the intended purpose without suggesting abundance or excellence. The data were categorized into three parent codes: (1) Actors and agencies, (2) Architectural attributes, and (3) Daily offerings. The researcher observed the excerpts and co-occurrence of the codes and suggested their crucial role in contributing to the adequacy.

3.4 The Participants

The first phase of data collection included three scholars and two priests as the interviewees. The second phase of data collection involved observing houses and their respective village structures. This process entailed interviews with the research participants. Two familial groups participated with each familial group represented by two research participants. These participants are the house owners (adult Balinese Hindus) who live in their respective houses. In total, four houses and their respective village structures were observed. Hence, two adults from rural areas and two adults from urban areas of Bali Island took part in the second phase of interviews and spatial observations.

Within each familial group, the objective was to examine the application of Balinese traditional religious principles in an origin house located in a rural area and then observe the application of the principles in the house of a descendent who migrated to an urban area. The urban houses were situated in urban neighborhoods and built on small plots of land. In contrast, the origin houses were located in rural areas of Bali, in two different regencies, and characterized by traditional spatial layouts. The intention of involving the familial groups was to ensure that each house in the urban area observed was affiliated with the same temple system as the rural house, and that the owner of the urban house had lived in the rural house (which applied the traditional spatial principles) before

migrating to urban area. This condition was necessary to identify the translation and changes in the architectural and spatial expressions being studied. This research did not include any vulnerable populations, and the participants were not necessarily English speakers. The researcher, being Indonesian and fluent in the participants' language (Bahasa Indonesia), conducted the data collection without the need for a translator. The interviews were conducted in Indonesian, and the informed consent documents were also provided in Indonesian, a language understandable to the participants.

3.5 Scope and Limitations of Fieldwork

The fieldwork for this study was conducted over four months in both rural and urban areas of Bali Island. This research involved case studies from two rural villages and two urban villages, focusing on two familial groups. In total, four homeowners, their respective houses, and village structures were observed. Additionally, interviews were conducted with two priests and three scholars/experts to gather comprehensive insights. It is important to acknowledge that, given the limited number of case study areas and participants, the sample size may not be statistically significant. While the information provided in this dissertation is valid and rigorously obtained, it represents an initial exploration rather than an exhaustive study. This research should be viewed as a pilot study, offering valuable insights and laying the groundwork for more extensive future research. The findings presented herein contributed to our understanding of the architectural and spatial expressions of Balinese traditional belief systems within rural and urban contexts. However, due to limited scope, further studies with larger sample sizes and diverse case studies are necessary to validate and expand upon these preliminary findings. This dissertation provides a foundation for subsequent research, encouraging a more comprehensive investigation into the dynamics of traditional/religious spatial principles and their adaptation to urban environments.

Chapter 4

Research Setting

This chapter provides a backdrop against which my observation unfolds, focusing on the local context of cultural, religious, and historical nuances that characterized my case studies. It serves as a foundational exploration, setting the stage for a deeper understanding of the contextual influences that shape the vernacular architecture and urban fabric of Denpasar, Bali.

At the outset, I need to revisit the “general principles of Hinduism” to establish a broad understanding of the religious beliefs and practices that pervade Balinese society. This exploration is important for comprehending the deeply embedded spiritual dimensions that influence architectural and spatial decisions on the island. The narrative then transitions to “Indonesia and Balinese Hinduism,” where I spotlight the unique manifestation of Hinduism in Bali. This segment highlights how Balinese Hinduism diverges from its Indian origins, incorporating local animistic traditions and ancestor worship, thus creating a distinctive religious landscape that impacts the local architecture and urban characters.

Moving forward, the “Historical Context of Denpasar” provides a lens through which I examine the city’s evolution from a royal kingdom state to its current status as a bustling urban center. This brief historical journey sheds light on how past events and socio-political changes have left a mark on the city’s space and daily life. Next, I explore “The Origin of the Inhabitants and Their Affiliation with the Temple System,” a critical aspect that underscores the socio-cultural fabric of Denpasar. This section examines the complex relationship between the city’s residents and the pervasive temple system, illustrating how these spiritual and communal affiliations influence settlement and social structures within the urban and rural environments.

Finally, “the Case Studies” section presents a selection of specific sites chosen for their illustrative value in understanding the interaction between religious practice, familial connections, historical context, and architectural form. Through these case studies, I aim to provide concrete examples showing evidence of how belief systems manifest in the physical landscape of Bali.

4.1 General Principles in Hinduism

Mangu (2009) introduces a theory regarding the history of Hinduism, suggesting that its development resulted from the amalgamation of two distinct traditions: those of the Indus Valley inhabitants and the Aryans from Persia. As Hinduism evolved, it drew heavily from the ancient Vedic tradition, accumulating a rich collection of sacred texts, most notably the four Vedas. Significantly, Hinduism’s core values are deeply influenced by the teachings of the Bhagavad Gita and the Brahma Sutra, which succinctly summarizes the Upanishads’ teachings (Stierlin, 1998).

Transitioning from the textual foundations to divine representations, the concept of Vedic Deities profoundly shapes the Hindu construction of the deities or devas. These divinities, omnipresent and innumerable, permeate every aspect of existence, manifesting in the natural world – mountains, rivers, trees, and animals – as well as within the human self. This omnipresence gives rise to various rituals that reflect these beliefs, including ablution practices and animistic rituals, such as prayers offered to trees, stones, and other elements of nature.

At the heart of Hindu divinity is the principle that gods manifest in human forms, endowed with human-like characters and emotions. This is epitomized by the concept of avatars, incarnations of the divine on earth. For instance, Krishna and Rama serve as avatars for Vishnu, while Hanuman is an avatar of Shiva. This portrayal of divinity, imbued with emotions such as anger, sadness, love, and

the capacity for empathy, underscores the intimate connection between the divine and the human experience.

Hinduism is characterized by three major sects – those that venerate Vishnu, Shiva, and Shakti – each with its unique representations of deities and distinct philosophical views on the divine and the cosmos (Wangu, 2009). Despite these differences, a unifying thread among these traditions is the belief in the primacy of the mind and spirit over the material world, which they regard as an illusion. This worldview culminates in the pursuit of *moksha*, or liberation from material existence, and union with Brahman, the ultimate reality and the primal cause of the universe.

Central to Hindu thought is the concept of *samsara*, the cyclic nature of birth and death, which posits that life is a continuous cycle with a beginning and an end. Integral to this cycle is the law of *karma*, which holds that every intention and action has consequences that determine one's future existence, potentially leading to rebirth. This causal relationship significantly influences Hindu attitudes, promoting the practice of *karmayoga*, as detailed in the Bhagavad Gita. *Karmayoga*, or the path of selfless action, is seen as a means to escape the cycle of birth and death, thereby guiding Hindus toward the creation of inner peace and a harmonious life.

The quest for *moksha* also underlines the importance of maintaining a harmonious relationship between atman, the individual soul, and Brahman, the universal soul. This connection, bridging the self with the ultimate reality, is nurtured through the worship of the divine, or *puja*. As such, it becomes challenging to distinguish the everyday life of a Hindu from their religious practices, given that daily life is deeply infused with ritualized expressions of faith.

The *puja* rituals represent a core aspect of daily religious observance and can be conducted in designated sacred spaces, either within the home or at a temple. The temple, known by various

names across different regions, is most commonly referred to as “Mandira” – a term denoting a sanctuary where deities await their devotees, serving as the earthly abode of the devas (Wangu, 2009). These sanctuaries stand as beacons of holiness within the chaotic and profane world, acting as intermediaries between humanity and the divine realm. Here, temples and shrines embody the homes of the devas, facilitating a profound connection between Hindus and the divine.

In these consecrated spaces, the devas are believed to descend from the celestial to the terrestrial, engaging with devotees through the exchange of gifts and prayers within the framework of symbolic meetings. This interaction underscores a deeply held Hindu belief in the interplay between space, time, and religious symbolism, which finds expression in the meticulous planning and design of their built environment. Consequently, the selection of a site for worship, along with the construction process and architectural forms, adheres to specific criteria reflective of these spiritual principles.

In the rich tapestry of Hindu symbolism, mountains and caves occupy a place of profound spiritual significance. Mountains, as depicted in Hindu scriptures, are not merely geological formations but sacred entities that bridge the earthly and the divine. Mount Meru stands paramount among these, revered as the axis mundi, the central axis of the universe around which all cosmic activity revolves. This mountain is not just a mythological concept but a symbol of stability, eternity, and the center of all spiritual and physical worlds in Hindu cosmology. Caves, with their dark interiors and narrow entrances, are emblematic of the womb of the universe, representing birth, rebirth, and the mysterious origins of life. They are places of retreat, meditation, and spiritual awakening, offering a tangible connection to the earth and a direct pathway to deeper spiritual truths. Water, another pivotal element in Hinduism, carries the power of purification, capable of washing away sins and enabling spiritual renewal. The Ganga, in particular, is venerated as a living goddess whose sacred waters flow through the heavens, the earth, and the netherworld, forming a celestial bridge that links

the mundane with the divine (Singh, 1994). It is the quintessential liquid axis mundi, a symbol of life, fertility, and purity, facilitating the contiguous cycle of life and death.

The sacred geometry of Hinduism, encapsulated in the Vastu Mandala, further illustrates the religion’s profound integration of natural symbols into its cosmological vision. The architectural blueprint not only dictates the spatial harmony of Hindu cities, villages, and homes, but also aligns these physical spaces with the cosmic order. Figure 2 illustrates the Mandala, with its geometric precision, serves as a microcosm of the universe, embodying the divine in the material world.

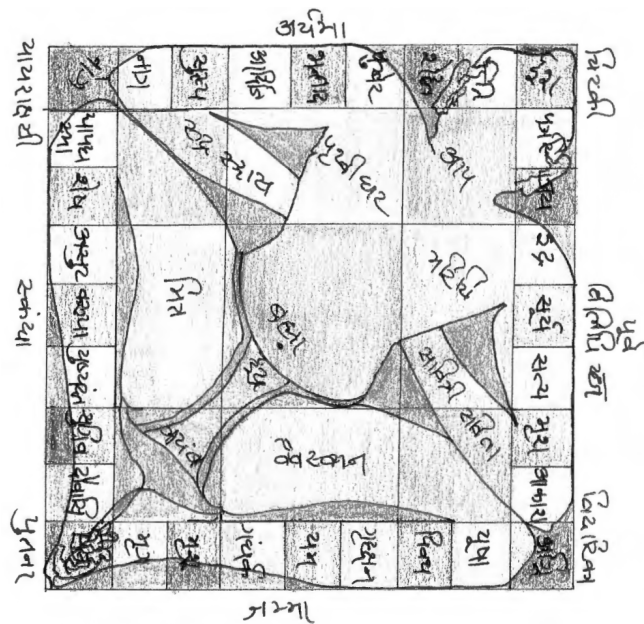


Figure 2. The cosmic diagram–mandala—a universal spatial concept in Hinduism. It may be applied to a house, temple, or city. Developed by the author.

Chakrabarti’s book, *Indian Architectural Theory: Contemporary Uses of Vastu Vidya* (Chakrabarti, 1998), offers an in-depth exploration of the Vastu Mandala, providing valuable insights into how ancient principles of sacred geometry continue to influence the design and construction of Hindu spaces today. Through this detailed examination, we gain a deeper understanding of the intricate ways in which Hinduism’s sacred symbols – mountains, caves, water, and the geometrical patterns of the

Mandala – are woven into the fabric of Hindu culture, reflecting a unique worldview where the natural and the spiritual are inextricably linked.

4.2 Indonesia and Balinese Hinduism

Indonesia, an expansive archipelago nestled between the Pacific and Indian Oceans, is a nation of over 17,000 islands with a complex history of colonialism and struggle for sovereignty (Figure 3). In the nineteenth century, it fell under the dominance of the Dutch through the operations of the Dutch East India Company. The trajectory of its history took a pivotal turn during World War II when it was occupied by the Japanese, leading to a momentous declaration of Indonesian independence from the Dutch in 1945.



Figure 3. Indonesian archipelago on the world map. Sc: Developed by author.

In the stages of its newfound independence, Indonesia faced the challenge of uniting its diverse population. Responding to the demands of various religious factions, President Soekarno, along

with his ministers, endeavored to craft a constitution that would bridge the differences among its people. A significant outcome of these efforts was the establishment of Pancasila, or the five principles, at the heart of which lies the belief in One Almighty God. This principle, prioritized as the foremost among the five, was envisioned to unify the country's diverse tribal groups and societies, which lacked a common language, currency, or culture.

The subsequent principles outlined in Pancasila – advocating for just and civilized humanity, the unity of Indonesia, democracy guided by the wisdom of deliberation among representatives, and social justice for all Indonesians – collectively aimed at fostering a strong sense of nationalism.

By emphasizing these values, the Pancasila sought to transcend ethnic loyalties, thereby cultivating a cohesive national identity amidst the rich tapestry of tribal affiliations and societal differences. Through this comprehensive approach, Indonesia embarked on a path toward unity and inclusivity, striving to harmonize its multifaceted heritage into a singular national ethos.

Building on the establishment of the Pancasila as Indonesia's guiding principles, which emphasize the unity and diversity of its populous, the nation further underscores the significance of religious tolerance as an integral part of its identity. This sacred duty towards tolerance is anchored in the belief in monotheism, or the belief in One Supreme God, a concept that not only underpins national unity but also deeply informs the constitution and national law.

In Indonesia, for a religion to be considered legitimate, it must conform to the legal definition in place, a cornerstone which is the monotheistic belief. While Indonesian citizens are not compelled to actively practice their chosen faith, those seeking to obtain identity papers are required to identify themselves as adherents of a recognized religion. This requirement highlights the practical implications of religious affiliation, as the issuance of crucial official documents,

including the national identity card, necessitates a declaration of religious belief. Without such an identity card, individuals face significant barriers, including restricted access to civic participation, as it precludes them from voting in elections, and impedes their ability to obtain a passport.

Moreover, this framework presents challenges in the context of aggressive proselytizing by government-recognized religions. Individuals who do not align with or belong to an accepted religion encounter additional obstacles, stemming from the societal pressure and legal ramifications of the nation's approach to religious affiliation. Through these policies and practices, Indonesia navigates the complex terrain of religious tolerance and unity, reflecting a continuous effort to balance diverse beliefs within its national ethos while addressing the challenges inherent in maintaining religious harmony.

Building upon the framework of religious affiliations in Indonesia, the imperative for individuals to align themselves with a recognized religion becomes even more pronounced in the wake of historical events. The tumultuous period marked by the violent riots of 1965 and 1966, driven by fears of the communist takeover, significantly elevated the stakes of religious identity. In this context, individuals not associated with a recognized religion were at risk of being perceived as atheists or communists, labels that carried potential threats to national security. Given atheism's lack of acceptance in Indonesia, the country has officially recognized six religions: Islam, Catholicism, Protestant Christianity, Hinduism, Buddhism, and Confucianism. Each of these religions has navigated the Nation's criteria for recognition in unique ways.

Delving into the adaptability of these recognized religions reveals the nuanced practice of Balinese Hinduism. This faith's roots trace back to what is commonly referred to as Bali Mula,

or the religion of the original Balinese people, also known as Bali Aga among those residing in the mountains. Initially, these indigenous practitioners revered deities dwelling in the natural world – among the hills, rivers, and trees. Despite an overarching resistance to Hindu influences among these groups, a fascinating synthesis occurred, incorporating rituals dedicated to Batara Indra, a figure drawn from the Hindu deity Indra. This syncretism persists in specific locales, such as Trunyan village, showcasing the enduring interplay between indigenous beliefs and Hindu practices, thereby enriching Indonesia's religious landscape. This narrative provided the backdrop for understanding the intricate layers of religious practice in Indonesia, specifically the incorporation of indigenous deities and ancestral veneration into Balinese Hinduism. This hybridization led to the recognition of the Balinese religion as a form of Hinduism. Local deities, referred to as *Hyangs*, are worshipped alongside ancestors in hallowed sanctuaries known as Kahyangan, which are frequently located in mountainous regions, reflecting the sacredness attributed to these high places.

Balinese folk Hinduism is distinguished by its rich practices including mediumship, healing arts, and communal possessions, practices overseen by religious practitioners known as *balian*s and *dukun*s. Within this diverse practitioner landscape, some *balian*s are specifically tasked with countering nefarious spirits, such as the dreaded *leyak* – a sorceress linked with dark magic.

Yet, the religious milieu of Indonesia experienced another layer of complexity with the introduction of classical Hindu deities, marking a significant cultural influx from India. This brought the worship of the major Hindu gods – Brahma, Vishnu, and Shiva – into greater prominence. Over the ensuing centuries, Balinese indigenous beliefs evolved significantly under the tutelage of South Indian priests and sages who journeyed to Bali, leaving indelible marks on the island's spiritual practices. A poignant example of this transformative period is the legend of

the sage Rishi Markandeya, who is chronicled as having made sacred pilgrimages to Mount Agung and the Besakih temple sometime between the fifth and the eighth centuries CE (McDaniel, 2013). His legacy is closely tied with the introduction of ceremonial worship dedicated to the deities Surya and Shiva, entwining them into the fabric of Balinese Hindu tradition.

In every place of worship, there must be a place of worship for Surya/ Sun. Notice that the universe is inconceivable. The center of the universe is emptiness/ nonexistent. Have you ever seen God? We do puja for the almighty: empty. God cannot be imagined. Within us, there is a God. In every cell, we have God. Hence, we live. We are not content with not being able to imagine God, because we want to feel close to God. What can we feel? The warmth of the sun: fire, light. It is Surya/ Sun: we feel its fire and rays. So, our second prayer was to the rays. What rays? Dev, God, the Day. In the daytime, there are rays. At night, there are none. Philosophically, this life is ruled by two aspects: Ying and Yang, light and darkness. Human beings are always in pairs. Human beings are created in pairs, and everything in the world must be in pairs. Dark and light, day and night. Can humans feel God? Humans can only feel the warmth. Humans can't see God. How is god's life? Since humans cannot imagine God, our prayer is embodied in God's Awatara/ Avatar.

A Priest in the interview

The oldest inscriptions in Bali, inscribed in Sanskrit, date back to approximately the ninth century CE, marking an era when Hinduism began to crystallize into the form recognized today in Bali. This era heralded a new chapter, particularly during the zenith of the Hindu Majapahit empire, which spanned from 1293 to 1520 CE and was primarily based in Eastern Java. The religious culture of the Majapahit was largely Shaivite, yet it also embraced tenets from Vaishnavism and Mahayana Buddhism, demonstrating a syncretism that enriched its spiritual tapestry (Picard, 2011).

The Majapahit empire's extension to Bali in 1343 CE through conquest served to deepen the Hindu influence on the island, a process that was compounded as the empire later waned in the face of rising Muslim dominance in the fifteenth century. This decline spurred a migration of

Javanese priests, artists, writers, and musicians to Bali, who carried with them a further infusion of Indian cultural and religious practices. A pivotal figure in this cultural infusion was Dang Hyang Nirartha, a Javanese Hindu leader who arrived in Bali in 1540. His contributions were instrumental in refining the worship of Shiva on the island. Subsequent evolutions of Balinese Hinduism increasingly highlighted Shiva's role, portraying him as an emblem of the union of masculine and feminine principles and the confluence of opposing forces, thereby underscoring the pursuit of balance within the spiritual tradition of Bali (Hooykaas, 1973). This historical progression exemplifies how external influences and indigenous practices shaped the unique form of Balinese Hinduism practiced today, and sets the stage for exploring the origins of Hinduism in Bali and the formative synthesis of its distinct tradition.

A widely accepted origin story, as recounted by the interviewed priest, Ratu, posits that Bali was once a haven for nine Hindu sects. Each sect exalted a specific deity and sought to elevate their venerated god to the island's preeminent spiritual position, igniting rivalry among them. Amidst this competitive spiritual landscape, a unifying force emerged in the form of Mpu Kuturan, a revered priest. Under his leadership, a historic convocation was held at Samuan Tiga temple in the late tenth century, a meeting that would shape the future of the island's religious identity. The gathering, attended by representatives of each set, forged a consensus to merge the diverse doctrines and practices into a cohesive belief system, which would come to be recognized as Balinese Hinduism.

This newfound religious expression, often referred to as Agama Tirtha, achieved widespread endorsement across the island (Goris, 1948). Agama Tirtha's foundational elements – its sanctified places, rituals, offerings, and cosmological views – integrated aspects from each of the individual sects and wove in strands of Balinese indigenous spirituality. Such a syncretistic form

of Hinduism offered a unified and broadly embraced spiritual framework, one that catered to the island's pluralistic society while retaining its unique cultural heritage.

Agama Tirtha Hinduism, as a distinct religious tradition in Bali, is rooted in the veneration of a trinity that consists of Brahma, Vishnu, and Shiva. This framework also recognizes a pantheon of goddesses, reflecting the faith's encompassing nature. Mirroring elements from its Indian counterparts, Agama Tirtha Hinduism's practices include the worship at temples, the performance of pujas, and the veneration of religious statuary, with priests facilitating rituals that often involve offerings such as food, fruits, and flowers. One of the unique characteristics of Agama Tirtha Hinduism is the use of multiple ritual calendars, which are employed in parallel to determine the timing of religious processions and holidays. Another distinctive trait, as highlighted by an informant, lies in its approach to murtis – the physical representations of deities. Unlike other traditions where gods are believed to reside permanently within statues, Agama Tirtha perceives deities as ephemeral guests. Statues and temples, therefore, are not seen as lasting abodes for the divine but rather as transient lodgings. They act as places for visitation, not habitation.

I had guests from India, who trace back their ancestors' journey to Indonesia, by visiting Sumatera Island, Java Island, and Bali Island. In a temple, he asked me: which God does the Balinese worship in the temple? My answer was that the Balinese temple could facilitate different Gods to come and have a seat. You can find the ones you are looking for. The Pura Kayangan Tiga; the three village temples in each village, is the instrument that unites various sects in Bali. Each village should have the Pura Kayangan Tiga. The Balinese do not only worship a specific God; the Balinese worship the manifestations of God. We worship Sang Hyang Widhi Wasa - the Divine Order, the Supreme God, the Supreme Deity. His task was creating, preserving, and ending/ recycling. All Gods and Goddesses are manifestations of Sang Hyang Widhi Wasa. God: Generator (Brahma), Operator (Wisnu), Destroyer (Siwa).

Informant

Sulistiyawati (2018) mentions that the concepts of yantra (instruments and tools) and mantra (words of prayers) in Balinese Hinduism distinguish themselves from their counterparts in Indian Hinduism. They are practices developed by Hindu Sages in the early days, which were instrumental in spreading Hinduism to the Indonesian archipelago, including to Bali Island (Figure 4).



Figure 4. Bali Island and its location in the Indonesian archipelago (Pringle, 2004).

In the wake of Indonesia's independence, the country's approach to religion underwent significant reformulation. The constitution's commitment to religious tolerance laid a foundation for acceptance based on prescribed criteria: a holy book, belief in a single god, a prophet, and a standardized code of ethics for followers. In response to this new religious framework, Balinese Hindu intellectuals gathered in 1959 under the auspices of the Parisadha Dharma Hindu Bali (PDHB) council to realign Hinduism to fit these government mandates.

This deliberate reformation involved recognizing a supreme deity, effectively elevating one God above all while assimilating other deities and ancestors into subsidiary roles, comparable to angels or divine aspects. The Vedas and the Bhagavad Gita were positioned as Hinduism's holy texts, on par with the Quran and the Bible, and Vedic Sages, or Rishis, were cast in the light of prophets. Emphasizing ethical conduct, national coherence, scriptural scholarship, and streamlined rituals, the PDHB initiated a bold reinterpretation of Hindu tradition.

The council's pioneering members undertook a thorough reinterpretation of sacred writings to construct a monotheistic foundation for Indonesian Hinduism. Adopting the Saiva Sidhanta school of thought, they highlighted the primacy of a single deity named Sang Hyang Widhi Wasa. This deity, equated with the Indonesian term 'Tuan' – meaning lord – quickly rose to national prominence as the emblematic divine figure in Balinese Hinduism.

The singular God is conceptualized as akin to a unified government with multiple departments (Bakker, 1993). Such a model of divine administration aligns with the oneness and multiplicity inherent in Balinese Hindu deities, reflected terrestrially in the form of structured bureaucratic hierarchies akin to governmental ministries. This portrayal of a deity overseeing the cosmic and moral realms resonates effectively with the religious paradigms of other major faiths in Indonesia. As a result of these transformative efforts, Balinese Hinduism received formal recognition from the Indonesian government. The PDHB remains the regulatory body for this religion, safeguarding its conformity with governmental regulations and ensuring its place within the nation's diverse religious landscape (Picard, 2004).

4.3 Historical Context of Denpasar

In Southeast Asia, the emergence of pre-colonial cities must be viewed within the larger framework of the state system. Scholars seem to have reached a consensus that in this region, particularly in its island areas, city-states emerged as the prevalent form of governance around the beginning of the second millennium. This model featured rulers who managed their domains from an inland capital, overseeing the agricultural expanses as well as maritime commerce through coastal port settlements.

However, applying Western notions of urbanity such as ‘town’ or ‘city’ to these Southeast Asian settlements necessitates careful consideration. While it is true that both Southeast Asian and European cities concentrated institutions of leadership and mediation within defined locales, the physical and social fabric of these cities diverged significantly from their European counterparts. Medieval European cities, characterized by their compact, vertically structured houses and protective city walls, contrast sharply with the spatial layout of Southeast Asian cities. Here, the defensive structures surrounded not the city itself, but the palace at its core. This central palace was surrounded by the residences of the lower nobility, which in turn gave way to the dwellings of the general populace. These settlements are commonly marked by a profusion of vegetation that blurred the lines between urban and rural landscapes; thus, visitors from the north may struggle to recognize these centers as cities by their standards.

A notable improvement in the availability and quality of source material emerged in the 19th century, coinciding with the Dutch intensification of diplomatic and trade endeavors. During this period, Dutch emissaries, although primarily fascinated by the grandeur of palaces and temples and the rituals performed within, seldom paid attention to the more mundane aspects of

pre-colonial settlements. It was not until Badung's conquest in 1906 that a systematic effort to document the city in its entirety was undertaken, culminating in the creation of the first comprehensive city map (Figure 5).

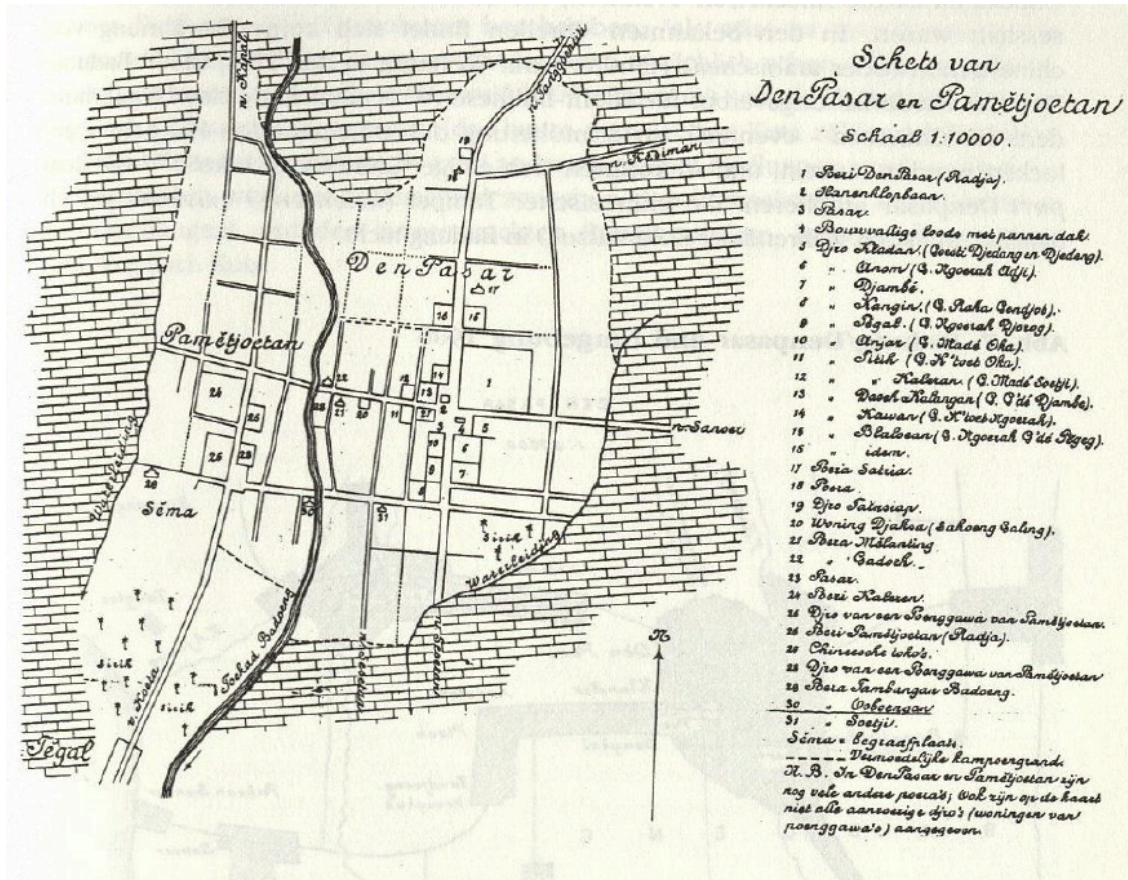


Figure 5. Map dated 1906, illustrating the main buildings at the center of Denpasar (Agung, 1989).

Southeast Asian traditional towns have also historically been molded by the principles of cosmology. Gesick (1989) describes that this worldview posits a fundamental harmony between the macrocosm- the larger universe- and the microcosm, epitomized by the earthly realm, wherein the monarch is perceived as an earthly embodiment of the divine. This conceptualization has, from ancient times to the present, positioned the royal palace as the nexus of urban development.

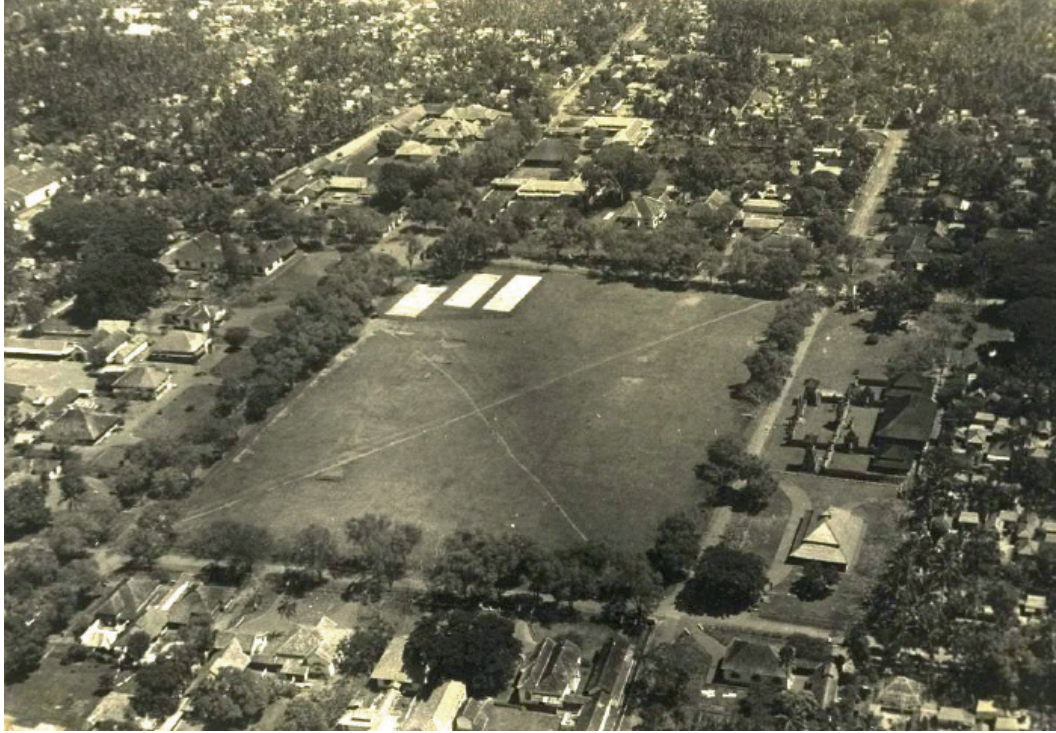


Figure 6. 1947 Aerial photograph of Denpasar's main square – Illustrates a line of colonial bungalows encircled by traditional multi-pavilion residential compounds. Sc: Leiden University Library, KITLV image code 41369.

Denpasar is a quintessential example of this historical pattern. As chronicled by Agung (1986), Denpasar was developed from a pre-colonial city, Badung. The city's founding in the eighteenth century was an initiative of King Gusti Ngurah Sakti Pamecutan, a descendent of the Majapahit dynasty that initially came to Bali in 1343. The Denpasar city's origin was centered around the puri/ keraton. Puri is the royal palace of the Badung kingdom, which is embedded in the etymology of 'Denpasar,' denoting 'north of the market.' Historically, the palace was the heartbeat of the city, surrounded by significant structures such as public halls, crossroads, and marketplaces. Even after the original palace was destroyed in 1906, the name 'Denpasar' continued to represent the broader urban area.

Unfortunately, the historical narrative of Badung's settlement, prior to Dutch arrival in 1597 remains fragmentary at best. The scarcity of records extends into the 17th and 18th centuries, leaving a gap in our understanding of Badung's socio-political fabric, as well as the scale, architecture, and purpose of its settlements during a time when Bali's external engagements, including those with European entities, began to intensify (Figure 5). This gap in historical knowledge may be attributed to several factors. Balinese sources, for instance, predominantly focus on the royal families, omitting detailed accounts of urban and rural settlement patterns. Additionally, Balinese rulers enforced a policy restricting foreigners to the coastal areas, effectively limiting their observation of the island's interior life (Tarnutzer, 1993).

Following Bali's conquest by the Dutch in 1908, Denpasar underwent a transformation into a hub of economic development, pivoting on trade and tourism in the southern part of the island. Acknowledging the unique tradition of the Balinese, the Dutch initiated cultural conservation efforts. The colonial government promoted Bali as a living museum and prohibited missionaries from coming to the island (Agusintadewi, 2014). Such early colonial efforts at cultural preservation dovetailed with the current strategies aimed at the conservation and development of Balinese culture.

The momentum of cultural preservation and development was continued by Indonesia's first president, Soekarno, who envisioned Bali as a tourism powerhouse. He laid the foundation for this vision by constructing critical infrastructure such as the island's international airport and Bali Beach Hotel in the 1960s. The tourism initiatives were further expanded under President Soeharto in the 1980s, leading to a proliferation of accommodations catering to a wide range of tourists. Presently, Denpasar is the focal point for tourist facilities, burgeoning into a cosmopolitan urban area and a premier tourist destination. Soeharto's government solidified

tourism as a cornerstone of Bali's economy over the last forty years, accelerating land development in Denpasar and its surrounding areas. Concurrently, Balinese culture became a national strategy to reap economic benefits from tourism.



Figure 7. Map illustrating the division of Bali Island to administrative regions. Image from Peta Rencana Struktur Ruang Sistem Pusat Permukiman, *Rencana Tata Ruang Provinsi Bali* tahun 2023-2043.

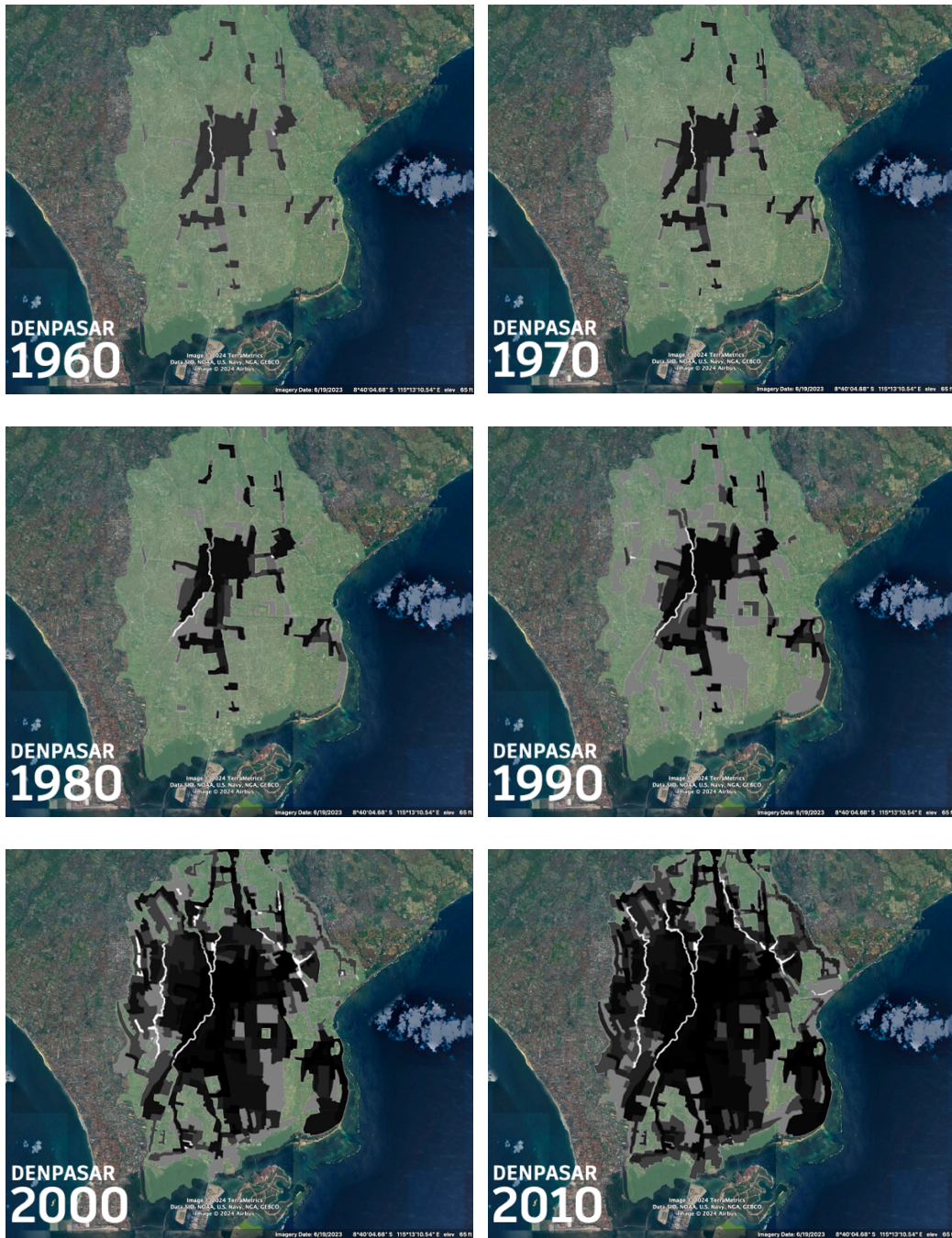


Figure 8. Illustration of Denpasar City growth, 1960-2010. Developed by the author from data and maps from Putra (2020) and Bappeda (2011).

Urbanization follows the city's economic growth, and it has a myriad of impacts on socio-cultural and spatial structures, infrastructures, economic growth, and the environment. As highlighted by Baker (1995), the rapid conversion of agricultural lands into residential and

commercial spaces is a pressing concern in the city's spatial development. Figure 8 depicts the expansion of Denpasar City decade by decade from 1960 to 2010. Over this period, the city experienced significant urban development and population growth, reflecting its transformation from a smaller urban center surrounded by rural villages to a bustling metropolitan area at the heart of Bali's economic and cultural landscape. This process has led to the gradual dilution of traditional architectural and spatial identities.

4.4 The Origin of the Inhabitants and Their Affiliation with the Temple System: The Villagers of the City and the Balinese Who Migrated to the City

The intricate interplay between Balinese and non-Balinese communities, as previously discussed, has significantly sculpted the cultural and physical landscape of the island. In the context of modern society, with its kaleidoscope of ethnicities, a comprehensive analysis of the built environment becomes imperative, necessitating an exploration of the various cultural traditions at play. This is particularly salient in the bustling urban milieu of Denpasar.

In Denpasar, where the Balinese constitute roughly 70% of the population, we may observe the presence of two distinct subgroups within the Balinese demographic. These subgroups are demarcated by their religious engagements and ancestral connections. The first subgroup includes those who are descendants of the original village inhabitants of Denpasar. These individuals maintain ties with the temple systems located within the city, reflecting an enduring bond with the locale's historical and religious foundations. This includes families who have migrated internally yet have established a social connection with the local rural roots by becoming members of the local village organization and local temple system. Contrastingly, the second subgroup encompasses Balinese who have ancestral roots in villages outside of

Denpasar. These individuals' religious affiliations extend beyond the city's temples to those in their ancestral villages. Consequently, the divergence between these two groups lies in their religious affiliations – while one is rooted firmly within the urban fabric of Denpasar, the other retains a connection to the spiritual structures of their rural origins.



Figure 9. Satellite image of Denpasar City, Indonesia. Sc: Developed by author.

Regarding the distinct social dynamics within Denpasar's Balinese population, it becomes apparent that the urban behaviors and spatial arrangements of the two subgroups are markedly different. Those descended from the original village inhabitants typically reside within the established village clusters, where interaction with non-Balinese residents is rare. The continuity of their religious traditions and close-knit residential patterns engenders urban social behaviors that are reminiscent of the communal interrelations found in rural settings, with an adherence to traditional organizational units such as the Banjar and Desa.

Conversely, the second subgroup of Balinese, who trace their lineage to ancestral villages outside of Denpasar, often settle in either these same urban villages or in the more recently urbanized fabrics. This latter group tends to integrate more with non-Balinese populations, leading to a divergence in social behaviors from those of the traditional structures typically found in Denpasar. Their connection to the city's modern urban fabric is moderated by the enduring significance they place on their ancestral homes in rural villages, which often supersedes their attachments to their urban residences.

The variation in dwelling patterns and communal associations for this subgroup may be influenced by a myriad of factors, including generational shifts, timing of family migration, and other personal considerations. These patterns prompt inquiries into how the new generations of Balinese uphold ties with their original villages and whether they seek to replicate familiar spatial structures at their origin house, or if they embrace novel interpretations of social and built spaces. Do they endeavor to preserve the spatial and social structures of their village origins within the urban context, or do they adapt to and possibly reinvent these structures to suit their contemporary urban lives?

Chapter 5

Patterns of the Balinese Architectural Expressions of the Belief System

Section 5.5 of this Chapter contains previously published coauthored material and coauthored by Feni Kurniati. The coauthor assisted in editing the section 5.5. The section 5.5 was published in volume 330 of the International Association for the Study of Traditional Environments (LASTE) Working Paper Series in 2024. The sections that appear here are written entirely by the dissertation author.

Within the Balinese Hindu worldview, the ‘act of creating’ in the material world is intricately linked to endeavors aimed at navigating connections with the forces of the invisible (*niskala*) realm. This involves not only revealing their presence in the visible (*skala*) realm but also crucially ensuring a respectful separation between these distinct ontological domains.

Functioning as a form of mediation, aesthetic presentation serves to bring ordinary concealed forces into the realm of the perceptible. Therefore, in this particular context, the study agrees with Telle (2023) that any spatial configuration in Bali should be viewed not merely as a spectacle designed for human observers but as a practice intended to captivate, involve, and resonate with unseen audiences. This chapter aims to discuss the essential patterns that shaped the Balinese villages and domestic spaces, based on the ethnographic phase of this study.

Furthermore, it is also apparent that a substantial portion of the spatial patterns and configurations elucidated in this chapter serves to depict the manifestation of the *niskala* within Balinese environments.

5.1. The Guidance System: Orientation and Cosmological Models

To grasp the foundation of patterns found in the environment and residences on Bali Island, it is essential to delve into the basic principles that guide the spatial arrangement. This subchapter

briefly explores some of these fundamental principles, which will prove valuable in understanding observed spatial arrangements and recurring patterns both at the villages and residential scales.

Several fundamental principles underpin the spatial organization of living environments in Bali. Among these, *Tri Hita Karana*, *Hulu-Teben*, *Kaja-Kangin*, and *Nawa Sanga/ Sanga Mandala* stand out as key concepts shaping the layout and arrangement of spaces. *Tri Hita Karana* encapsulates the notion of harmony and balance between humans, nature, and the divine. *Hulu-Teben* and *Kaja-Kangin* refer to the orientation of spaces, emphasizing the importance of positioning structures in alignment with natural elements and cosmic forces to harness positive energies. Additionally, *Nawa Sanga/ Sanga Mandala* underscores the cosmological significance of directional alignments, with each cardinal point representing distinct deities and cosmic energies. Understanding these foundational principles is crucial for comprehending the observed spatial patterns and recurring motifs evident at both the villages and domestic scales within Balinese contexts.

Notably, the Balinese conceptualization of orientation and cosmic representation has been a focal point for extensive exploration by both local and international researchers. The *Nawa Sanga*, comprising nine directions intertwined with their respective deities, mounts, metals, and color associations, has been thoroughly examined. Furthermore, the application of a standardized schematic plan, chosen for its seamless alignment with the *Nawa Sanga* and *Sanga Mandala*, has dominated theoretical approaches in structuring the Balinese domestic spaces. However, the previous (positivist) approaches have often remained abstract, neglecting the diverse tapestry of vernacular residential models. To attain a more nuanced illustration and insights into the vernacular solutions, a series of interviews and observation studies of the patterns that appear across the different case studies is imperative.

The Balinese Hindu is teaching about consciousness. What should a Balinese Hindu be conscious about? The Balinese Hindu should be conscious of the basics. Because our houses are located near sacred objects, we have the urge to maintain, clean, and provide offerings in sacred places. A person works because he wants and feels the need to share his ability, not because of the rewards or salary. This consciousness is the ideal responsibility that calls a person, and it is not forced. A person who does not have consciousness cannot be forced to do something. A drunk person loses consciousness, cannot communicate and is confused. Balinese has a term: Paling, which means confused and disoriented. Young people who do not have guidance and a sense of direction in their life are "Paling": confused and disoriented. These people are not aware of the cardinal directions. These people are not aware of what is important in life. Balinese people follow the teachings of their ancestors, and this teaching is deeply related to spatial directions and orientations. Forgetting the directions means forgetting the identity because every part of Balinese spiritual tradition is related to directions.

An Informant in the Interview

The arrangement of Balinese residences, a pervasive feature in nearly all Balinese villages, is intricately woven into their cosmological beliefs. At its essence is the notion of a triple-tier universe, encompassing the upper sacred realm (*swah loka*), the middle human realm (*bwah loka*), and the lower realm (*bbur loka*). This trichotomy extends across various facets such as head-body-feet, mountain-plain-sea, or sunrise-daytime-sunset, weaving a complex tapestry of spatial organization within each village and the household yard. This traditional segmentation manifests as the sacred, intermediary, and profane part of the built environment.

Furthermore, the study illustrates that the structured order and orientation transcend the physical landscape, permeating the everyday lives of the Balinese populace. Even during moments of repose or periods of sleep, individuals conscientiously position their bodies to align the head with the sacred direction and the feet with the profane direction, with any contrary orientation strictly prohibited. This symbolic arrangement also significantly influences behavioral norms: within the sacred area, individuals are obliged to attire themselves and conduct themselves in an exceedingly decorous manner. In the profane areas, more casual attire and liberated speech are deemed acceptable.

Orientation of Spaces and Tri Hita Karana

Balinese belief about the universe follows a bipartite pattern where one aspect complements the other, echoing the inherent duality observed in phenomena such as day and night, birth and death, among others. This cosmic worldview is indispensable to the Balinese perspective.

Consequently, the Balinese embrace cosmic opposites, exemplified spatially by two pairs of directions that are opposite to each other: *Kaja* versus *Kelod* (signifying the direction toward the mountain versus the direction toward the sea) and *Kangin* versus *Kaub* (the direction of sunrise versus the direction of sunset).

The term *Kaja*, signifying the direction towards the mountain, exhibits variability contingent on the location of Gunung Agung (Mount Agung), or in some cases, the visible highest point. Since the location of Mount Agung is approximately at the center of the island, the *Kaja* direction is construed as ‘the north’ by the citizens of South Bali, and ‘the South’ by those residing in North Bali. Irrespective of the north and south, the sacred orientation consistently ascends upwards towards the divine. Hence, *Kaja* direction has acquired the connotation of propitious, favourable, or divine. Its antithesis, *kelod*, denotes the seaward orientation, directing towards lower elevations and diverging from the sacred mountain, thereby characterizing a less sanctified expanse, less sacred area.

The way Balinese Hindus see space is connected to their belief in this bipartite belief. They view space not just as empty or neutral but as having different values and sacred directions. In addition to these cosmic opposites, Balinese Hindus acknowledge an intermediate element, transitioning from a bipartite to a tripartite perspective, although this shift is not clearly defined. Various examples illustrate this concept, such as the existence of humans between gods and

demons, and life situated between birth and death. This tripartite division resulted in *Tri Hita Karana* philosophical concept (which means the three causes of happiness). This philosophy, which is widely accepted in Bali, says that everything consists of three components.

This philosophical doctrine aspires to create a state of equilibrium, encapsulating the intricate relationships among human beings and God, human beings and the natural world, and the interconnections among individuals themselves. These connections are believed to be the sources of a harmonious existence. *Tri Hita Karana*, as a guiding tenet, fosters the conceptual framework of *Tri Angga*, delineating the spatial landscape into three spatial classifications: areas sanctified as holy, spaces designated as human habitation, and areas reserved for nature. Consequently, this spatial arrangement adopts a hierarchical structure, with sacred spaces classified as *utama* (the sacred, upper level), *madya* (neutral or middle tier), and *nista* (profane or lower level).

At the macro scale, the island undergoes a stratification into *utama*, *madya*, and *nista*. At the zenith of sacred alignment in Bali lies the mountainous terrain, where Gunung Agung, the island's highest volcano ascends to 3,142 meters above sea level and stands as the epicenter of the Balinese cosmos (Figure 10). This elevated peak is venerated as the divine residence of Gods and deified ancestors. Consequently, any movement towards *Kaja* (the mountain) signifies a transcendence into realms of heightened sanctity and cultural significance. The directional embrace of *Kangin*, or the east, aligns with the sun's emergence, symbolizing the inception of life – an attribute esteemed as more sacred than the westward orientation, *Kauh*.



Figure 10. The location of Mount Agung, a sacred volcano. Sc: Rencana Tata Ruang Provinsi Bali tahun 2023-2043.

The sacred-profane dichotomy manifests not only on a macroscopic scale but intricately shapes the layout of individual Balinese residences. Observations in the case studies indicate a consistent *kaja-kelod* orientation within each Balinese house compound. The family temple, positioned within the residence, is located in the most sacred zone with its *kaja-kangin* alignment. The household's head inhabited the most elevated *kaja* structure in the compound, and sleeping arrangements mandated an orientation with heads either towards *kaja* or *kangin*. In contrast, the kitchen and waste disposal sites were systematically relegated to the furthest *kelod*. However, contemporary Bali may indicate a departure from rigid adherence to directional sacredness,

acknowledging that orientations deemed more sacred do not inherently possess superiority over those considered more profane.

Nawa Sanga

During my fieldwork, a priest explained that in the early stages of Hindu development in Bali, the Siwa Sidhanta philosophy had the most followers. Balinese Siwa Sidhanta conveys the idea that Hyang Siwa represents the ultimate goal. Siwa is recognized as Sang Hyang Widhi in three forms – Siwa, Sada Siwa, dan Parama Siwa – serving as the ruling deity positioned at the center of the cosmic axis. In Sang Hyang Widhi's three primary functions, Siwa manifests as Brahma, Wisnu, and Iswara (known as Tri Murti). Donder (2013) also mentioned that in the theology of Saguna Brahman, it is commonly believed that God has three manifestations, represented by the gods Brahma, Vishnu, dan Shiva. These three divine manifestations are commonly known as the Tri Murti or the Holy Trinity in Hindu belief, symbolizing the true representations of the Supreme that manifest within the souls of ordinary individuals.

You see, the devotees practicing the Tantra tradition in Bali hold great reverence for Sang Hyang Widhi, manifested as Dewata Nawa Sanga. They seek strength, life perfection, and divine energy from the deities overseeing the eight cardinal directions. This integration highlights the close connection between the Tantra school and the Siwa Sidhanta sect, the fundamental teachings of Hinduism in Bali.

A priest in the interview

In principle, the alignment of space and spirituality in Bali adheres to eight compass directions, encompassing the cardinal points of *kaja* (north), *kelod* (south), *kangin* (east), and *kanuh* (west), supplemented by four intercardinal directions, and further nuanced by the pivotal *tengah* (center). Dewata Nawa Sanga refers to nine gods that oversee the nine directions, where eight gods reside in the eight cardinal directions, and one holds the central position. Within the illustration of

Dewata Nawa Sanga, Batara Siwa governs the cosmic center as Batara Hyang Guru/ Sang Hyang Widhi, simultaneously manifesting in all eight directions and governing the cardinal points as the central force in the *Bhumana Agung*/ universe. The eight divine attributes of Sang Hyang Widhi are referred to as Asta Aisvarya, symbolized by eight gods occupying the sacred petals of the lotus.

5.2. Introduction to the Patterns

Influenced by Christopher Alexander's "first theory," I was interested in looking for recurring patterns in the physical environment. These patterns appear to exemplify how the organization of space and buildings emerges directly from the intrinsic nature of the people, mirroring their way of life. It is important to note that recognizing these patterns does not imply uniformity in architectural practices. Instead, it acknowledges the potential for diverse architectural forms to arise based on various contexts and times. However, amidst this diversity, there exists a fundamental essence common to all architectural expressions.

The orientation system and cosmological models upheld by the Balinese Hindu community that I explained in the previous subchapter seem to serve as the guidelines for the emergence of recurring patterns in the villages and residential environments in Bali. The observations conducted have revealed these recurring patterns:

1. The Three Worlds
2. Upstream-Downstream Axis
3. Frequent Intervals of Sacred Nodes of the Village
4. The Townhall: Central Social Space
5. Orientation System of the Houseyard

6. Celebrated Entrances
7. The Pavilions as the Frame of the Courtyard
8. House Temples and the Sacred Shrines

Patterns 1 to 4 are patterns found at the village level, while patterns 5 to 8 are patterns found at the level of the house compound. Table 3 provides short descriptions of the patterns.

Patterns	Description
Patterns of the village	
The Three Worlds	<i>Each village has the village temples: the Kahyangan Tiga. The Pura Puseh (the Temple of Origin, dedicated to the deified ancestors or village founders). Pura Bale Agung (the Temple of the Gods). Pura Dalem (the Temple of the Death). The whole members of the village could do the rituals in these village temples. The Pura Puseh located in the mountainward area. Pura Bale Agung in the center of the village, and Pura Dalem in the seaward area.</i>
Upstream-Downstream Axis	<i>The main street following the sacred Hulu-Teben axis. Secondary major street is built to connect the main streets. From the perspective of Balinese Hindu, the Levels of the universe is manifested at all scale of Balinese Hindu's Environment, including the spatial arrangement of the villages. The upstream resembles the sacred/ upper world. This sacred world is the place of the Gods (Deva-Devi). The north-south axis also related to the topography of Bali Island. The linear mountain range in the middle of the island, stretched from east to the west, creates the north-south axis, connecting Kaja direction (mountainwards) and Kelod direction (seawards).</i>
Frequent intervals of sacred nodes of the village	<i>The Balinese Hindu build their shrines at places and natural elements that are believed to have spiritual powers. The shrines symbolize the intentions that the God (Ista Dewata - the God that they want to be present) in his manifestation as the guardian could present at the seat (shrines). Balinese Hindu may visit and provide offerings to the shrines that are important for them to ask for safety. The common locations are waterways, tree, rivers or creeks, roundabouts and intersections.</i>

The Townhall: Central Social Space	<i>The Bale Banjar, a public building that facilitates communication among community members, social activities, and rituals, is built in every banjar/ hamlet. It acts as the representation of the idea of keeping the balance between the material/ human realm, and harmonious social relations.</i>
Patterns of the houseyard	
Orientation System of the houseyard	<i>The spatial arrangements within the houseyard follows the Sanga Mandala. Sanga (nine) Mandala (area, container, place) is defined as the manifestation of the nine gods in keeping the balance of the universe: cosmological orientation. Sanga mandala is a combination of Tri Angga and Catuspatha, dividing the space into nine zones. Batara Siwa occupy the center of the cosmos, and manifests in eight directions. The house is like a human being. It has a head (the family shrine), arms (the sleeping quarters and the social parlor), a navel (the courtyard), sexual organs (the gate), legs and feet (the kitchen and the granary), and anus (the pit in the backyard for disposal).</i>
Celebrated entrances	<i>The gate of the residential compound and house temple are decorated. The entrance in a Balinese house is a system of space and structures: Lebuh, Angkul-angkul, Apit lawang, and hierarchy of floor levels. Each component is a seat of a God or beings of the underworld, and treated accordingly with offerings and particular built structures.</i>
The Pavilions as the Frame of the Courtyard	<i>The Balinese house follows an ideal Tri Mandala and sanga mandala and is built according to the treatises. A collection of pavilions or structures is built around a central courtyard, each meticulously positioned to reflect a distinct hierarchical arrangement and directional orientation.</i>
House Temples and the Sacred Shrines	<i>Each house builds a house temple at the Utama zone (kaja-kangin), the holiest part of the compound that is dedicated for the Gods and ancestors. In addition to the house temple, a Balinese Hindu house builds other shrines (Penunggun Karang, Pelinggih Surya, Pelinggih Indra Blaka), place offerings at particular locations, and build micro shrines (pelangkiran) inside the house.</i>

Table 3. Descriptions of the Patterns

The patterns are particularly evident in each genealogical group's origin village. In urban areas, traces of the patterns at the village level can be observed, while at the domestic space level, adjustments are made due to land limitations and other constraints. Table 4 briefly illustrates the manifestations of the patterns in each case study. Chapter 6 will present a more detailed explanation regarding the solutions of the pattern applications.

Patterns	Manifestations			
	Genealogical Group 1		Genealogical Group 2	
	Pangsan (Origin Village)	Peguyangan (Urban Area)	Tabanan (Origin Village)	Kedua (Urban Area)
The Three Worlds	<i>The Kayangan Tiga temples are built and positioned according to the treatises.</i>	<i>The Kayangan Tiga temples are built and positioned according to the treatises.</i>	<i>The Kayangan Tiga temples are built and positioned according to the treatises.</i>	<i>The Kayangan Tiga temples are built and positioned according to the treatises.</i>
Upstream-Downstream Axis	<i>The main street follows the sacred bulu-teben axis.</i>	<i>The main street follows the sacred bulu-teben axis.</i>	<i>The village is structured by Catus Patba, an intersection of kaja-ke lod and kangin-kaub axis.</i>	<i>The main street follows the sacred bulu-teben axis.</i>
Frequent intervals of sacred nodes	<i>Shrines are built at places/ natural elements that are believed to have spiritual powers. The common locations are waterways, tree, rivers or creeks, roundabouts and intersections.</i>	<i>Shrines are built at places/ natural elements that are believed to have spiritual powers. The common locations are waterways, tree, rivers or creeks, roundabouts and intersections.</i>	<i>Shrines are built at places/ natural elements that are believed to have spiritual powers. The common locations are waterways, tree, rivers or creeks, roundabouts and intersections.</i>	<i>Shrines are built at places/ natural elements that are believed to have spiritual powers. The common locations are waterways, tree, rivers or creeks, roundabouts and intersections.</i>
The Townhall:	<i>Bale Banjar is built and</i>	<i>Bale Banjar is built and</i>	<i>Bale Banjar is built and</i>	<i>Bale Banjar is built and</i>

Central Social Space	<i>facilitate the community social activities.</i>	<i>facilitate the community social activities.</i>	<i>facilitate the community social activities.</i>	<i>facilitate the community social activities.</i>
Orientation System of the houseyard	<i>In the houseyard, the sacred zone exclusively hosts the house temple, while the profane region accommodates practical spaces like the kitchen or livestock pens. The intermediary space, nestled between these two extremes, serves as the backdrop for the family's daily activities, housing the living area and sleeping pavilions.</i>	<i>The cosmological hierarchy is particularly applied in the placement of the house temple. Functions that facilitate family's daily activities do not strictly following the cosmological guidance. However, the placement of bed, and sacred components (sbrines) still follow the treatises.</i>	<i>In the houseyard, the sacred zone exclusively hosts the house temple, while the profane region accommodates practical spaces like the kitchen. The intermediary space, nestled between these two extremes, serves as the backdrop for the family's daily activities, housing the living area and sleeping pavilions.</i>	<i>The cosmological hierarchy is particularly applied in the placement of the house temple. Functions that facilitate family's daily activities do not strictly following the cosmological guidance. However, the placement of bed, and sacred components (sbrines) still follow the treatises.</i>
Celebrated entrances	<i>The gate of the residential compound and house temple are decorated. The entrance is a system of space and structures: Lebuh, Angkul-angkul, Apit lawang, and hierarchy of floor levels.</i>	<i>Decorated gate is no longer built. Despite the missing physical components, the daily offerings for the deities are still provided.</i>	<i>Decoration at the house's gates is minimal. However, the house temple's gates are highly decorated. The entrance is a system of space and structures: Lebuh, Angkul-angkul, Apit lawang, and hierarchy of floor levels.</i>	<i>Decorated gate is no longer built. Despite the missing physical components, the daily offerings for the deities are still provided.</i>
The Pavilions as the Frame of the Courtyard	<i>The placement of each pavilion follows the treatises; the pavilions are built around the central</i>	<i>Central living room seems to replace the function of the central courtyard. Functions are</i>	<i>The placement of each pavilion follows the treatises; the pavilions are built around the central</i>	<i>Central living room seems to replace the function of the central courtyard. Functions are</i>

	<i>courtyard based on traditional principles.</i>	<i>built around central living room. The placement of functions not necessarily considers the hierarchy of functions.</i>	<i>courtyard based on traditional principles.</i>	<i>built around central living room. The placement of functions not necessarily considers the hierarchy of functions.</i>
House Temples and the Sacred Shrines	<i>The family builds the house temple at the Utama zone (kaja-kangin), the holiest part of the compound. In addition to the house temple, the owner builds other shrine (Penunggun Karang), place offerings at other particular locations, and build micro shrines (pelangkiran) inside the house.</i>	<i>The family builds the house temple at the highest level of the house, at the third floor, at Utama zone (kaja-kangin), the holiest part of the compound. In addition to the house temple, the owner builds other shrines (Penunggun Karang, Pelinggih Indra Blaka), place offerings at other particular locations, and build micro shrines (pelangkiran) inside the house.</i>	<i>The family builds the house temple at the Utama zone (kaja-kangin), the holiest part of the compound. In addition to the house temple, the owner builds other shrine (Penunggun Karang), place offerings at other particular locations, and build micro shrines (pelangkiran) inside the house.</i>	<i>The family builds the house temple at the Utama zone (kaja-kangin), the holiest part of the compound. In addition to the house temple, the owner builds other shrines (Penunggun Karang, Pelinggih Indra Blaka), place offerings at other particular locations, and build micro shrines (pelangkiran) inside the house.</i>

Table 4. Manifestation of Patterns

5.3. Patterns of the Village

5.3.1. The Three Worlds

The Kayangan Tiga is the three village temples of a desa pakraman (Balinese village) which are central to the ritual activities of the villagers. The Kayangan Tiga consists of Pura Desa, Pura Puseh, and Pura Dalem, which are distributed according to the *Hulu-Teben* axis.

At the village scale, the establishment of a new Balinese village involves the identification of three distinct locations designated as Kahyangan Tiga: the village temples. The Kahyangan Tiga holds paramount importance for the Balinese people. *Kahyangan*, serving as an honorary designation for a temple, literally conveys the ‘place of the Gods.’ The term *Tiga*, meaning three, signifies the three great temples.

The location of Kayangan Tiga Temples depends on the cardinal directions. The mountain is located in the north of the southern region of Bali. It is considered the Highest place on Bali Island. Balinese Hinduism considers the mountain to be a life-giving sacred place and a place for holy people. In the north direction is the Mountain, in the middle is the place of the house (Brahma), and in the south is the place of recycling (Pura Dalem). The preferable layout of the temples in the village is, from north to south: Pura Puseh (Vishnu), Pura Desa (Brahma), and Pura Dalem (Iswara).

A priest in the interview

The Kahyangan Tiga consists of the Pura Puseh, the Temple of Origin that is ideally located in the mountain ward (*kaja*), venerating deified ancestors or village progenitors. Subsequently, Pura Dalem, the Temple of the Dead, is situated seaward (*kelod*), adjacent to the burial ground, dedicated to pacifying the spirit of the deceased. Lastly, Pura Bale Agung or Pura Desa, the Temple of the Great Councils of the Gods, occupies a central position within the settlement, consecrated to bolstering land fertility and the village’s well-being. Every temple hosts a *piodalan* or temple festival once in every 210-day Balinese year (equivalent to every seven months in the Gregorian calendar). While the theoretical framework dictates the presence of these three temples in every adat village, the practical reality reveals variations, with some villages lacking one or more temples. In certain instances, a temple may be condensed to a solitary pavilion or structure. Furthermore, the prescribed relative orientation of these temples is not consistently adhered to, as the consequence of context-based constraints in some villages. As previously indicated, affiliation with a temple is delineated by geographical boundaries, assigning each

Balinese individual to a distinct set within a *desa pakraman*³. The devotees of the *Kahyangan Tiga* assemble exclusively for the compulsory temple festivals, and not for any other social functions, political, economic, familial, or other spheres.

5.3.2. Upstream-Downstream Axis



Figure 11. During celebrations, the festivities spill out onto the streets, which are lavishly decorated for the occasion in the Kerobokan area, 2022. Image taken by the author.

Desa Pakraman (or *Desa Adat*), the traditional villages, meticulously adhere to the *kaja-kelod* alignment. The main street follows the sacred *Hulu-Teben* axis. Secondary major streets are built to connect the main streets. The Levels of the universe are manifested at all scales of the

³ The *Desa Pakraman* is a traditional customary community in Bali characterized by a unified tradition and social conduct of the Balinese Hindu community passed down through generations. It is bound by the concept of *Kahyangan Tiga*, which delineates specific territorial areas and the traditional right to govern its own community.

Balinese Hindu's Environment. The *Hulu*/upstream resembles the sacred/upper world. This sacred world is the place of the Gods (Deva-Devi). The north-south axis is also related to the topography of Bali Island. Figure 12 illustrates the linear mountain range in the middle of the island, stretching from east to west, creates the north-south axis, connecting the *Kaja* direction (mountainward) and *Kelod* direction (seawards).

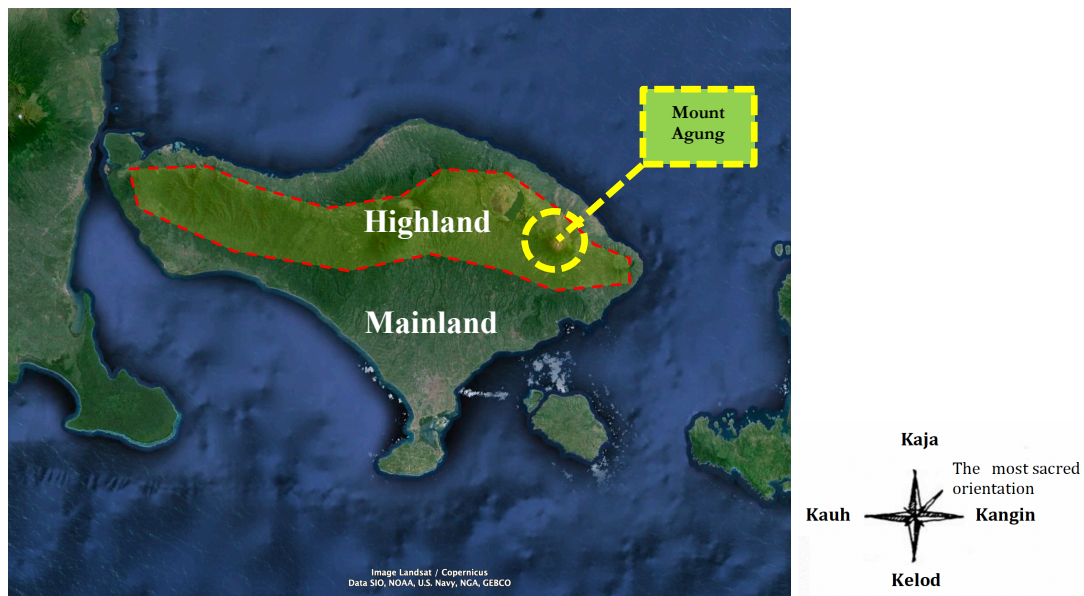


Figure 12. The mountainous region extends across the middle of the Bali Island, stretching from the eastern to the western parts. Sc: Developed from Budihardjo (1995).



Figure 13. Balinese streets are an important part of Balinese Hindu rituals and celebrations. Frequently, sections of streets are reserved for these sacred activities. Specifically, the image captures a parade in the Kesiman area, 2022, which forms part of a celebration honoring the deceased and ancestors. Images taken by the author.

In many rural villages, it is common to see ambiguous boundaries between different types of movement modes. Pedestrian, motorized, and non-motorized vehicle movement are using shared movement spaces. In addition, it is also common to see narrow streets in rural villages. In the older village's street, cars and other motorized vehicles were not a consideration in creating the spaces for movement. The main streets are considerably narrow but sufficient to facilitate

slow-speed vehicles (such as carts), and pedestrians. The street is also considered to be a multifunctional space, producing flexibility in street use. The street space could facilitate the need for ceremonies, such as frequent sacred marches and rituals on the streets (Figure 13). The village may frequently close the street for vehicle activities during ceremonies and rituals. Furthermore, very few dedicated on-street parking spaces are provided along the street. Street parking spaces are ambiguous and may be negotiated with spaces for pedestrian movements.

5.3.3. Frequent Intervals of Sacred Nodes

Besides the Kayangan Tiga temples, Balinese Hindus build their shrines at places and natural elements that are believed to have spiritual powers. The shrines symbolize the intentions that the God (Ista Dewata - the God that they want to be present) in his manifestation as the guardian could present at the seat (shrines). Balinese Hindus may visit and provide offerings to the shrines that are important for them to ask for safety. The common sacred natural elements are sacred trees, waterways, rivers or creeks, and the intersection of waterways (Figure 14).

Other sacred locations are roundabouts and intersections. These spaces are considered manifestations of the center of the universe; the intersection of two cosmological axes: *kaja-keod* and *kangin-kanuh*. Balinese Hindus believe that these intersections attract supernatural beings of the underworld and, hence have the spiritual power to influence the material world. The intersection could be a major intersection, an intersection of smaller streets, or an intersection between a street and an alley. In cases where a shrine is not present, a Balinese Hindu may also provide offerings on the ground, at one corner of the intersection.



Figure 14. A shrine next to a bridge in Petang village, 2022. Image taken by the author.

5.3.4. The Townhall: Central Social Space

Every Banjar (hamlet) in Bali has a Bale Banjar (Figure 15). It serves as a hall of the hamlet, functioning as a pivotal hub for community engagement. It also serves as a central venue where various social organizations within the banjar could convene, organize, and execute a wide array of communal activities. These activities encompass not only social gatherings but also extend to political discussions and the coordination of daily communal affairs.



Figure 15. Bale Banjar Tengah in Desa Adat Blahbatuh, 2022. Images taken by the author.

According to Ngoerah (1975), the communal life of rural Balinese communities has historically revolved around gathering spaces where villagers convene for various purposes, typically under the shade of venerable Banyan trees in village settings. These open-air areas have served as natural meeting points for local hamlets, facilitating social interactions, decision-making processes, and community events. Over time, as village dynamics evolved and societal needs grew, these informal meeting spots transformed. Gradually, with the initiative of individual banjars, these once rudimentary gathering spaces were developed into more structured and purpose-built communal facilities known as Bale Banjar. These Bale Banjar could consist of a couple to several interconnected buildings, providing the necessary infrastructure for social, political, and day-to-day communal activities.

5.4. Patterns of the Houseyard

5.4.1. The Orientation System of the House

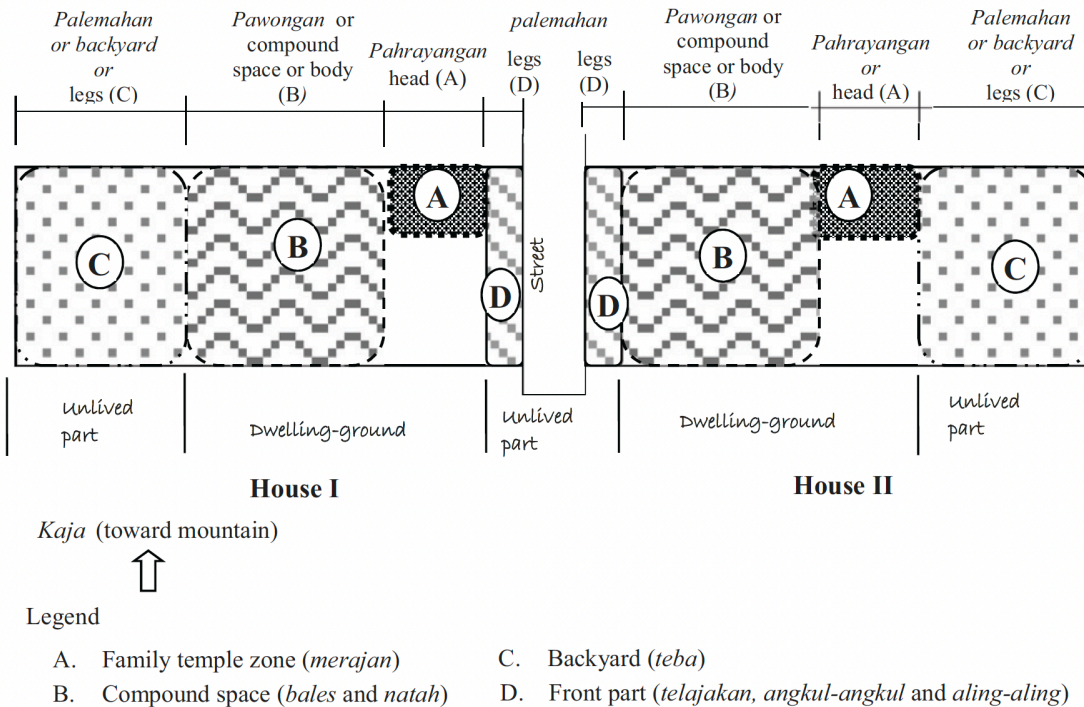


Figure 16. The conceptual zones of the residential compound. Sc: Putra, A.P., Lozanovska, M., Fuller, R. (2019).

...Balinese traditional houses are also divided into three parts. The North/Puseh is the Upstream, Brahma in the middle, and Iswara in the south. Balinese needs to have an upstream/headwaters, a house in the middle, and a downstream as a final place/ the garbage disposal. Upstream, middle, and downstream can be associated with high, medium, and low land elevations. However, in Balinese tradition, the upstream is also associated with the north. The upstream is a holy place. It is in this holy place that we build a place of worship. The place of worship is also divided into three parts: the Puseh, Desa, and Dalem. Upstream/hulu is a sacred place, and it is not allowed to build a temple in the middle.

A priest in the interview

Figure 16 illustrates the common conceptual zones in the Balinese houseyard. The family temple zone (A) exclusively hosts the house temple, while the *Palemahan* region (C) accommodates practical spaces like the kitchen or livestock pens. The compound space (B), nestled between

these two extremes, serves as the backdrop for the family's daily activities, housing the living area and sleeping pavilions. Zone A and Zone B are arranged according to the orientation of *Kaja-Kelod* and *Kangin-Kaub*, so that the positions of both zones are identical on both sides of the street. Zone D is located next to the street, and Zone C is located at the back of the building site. Within the residential compound, pavilion structures situated within the sacred precinct inherently manifest a higher hierarchy compared to their counterparts in the profane domain. Furthermore, each pavilion is conceptually consisting of three distinct physical segments: the head, the body, and the feet. Within this conceptual framework, the roof symbolically represents the head, the heightened elevation of the house pavilion floor conveys the middle world, acknowledged as the rightful domain for human occupation, and the foundation serves as a representation of the feet. This intricate architectural arrangement reflects a symbolic articulation of the Balinese cosmological worldview within the domestic environment.

In this traditional Balinese residential compound, two specific empty areas hold significant importance and are frequently present. These vacant spaces are known as *natab* in the compound space (B) and *teba* in the *Palemahan* region (C).

At the center of the compound space (B), we will find the *natab*. It is an open space or void between building units in a Balinese compound, serving as the central orientation point for all structures and symbolizing the *catus patba*. This empty space signifies the meeting space between *purusa*/father/sky and *pradana*/feminine/earth. Thus, *natab* is a symbol of the meeting between heaven and earth. The convergence of the two requires a sacred space, and the elders always allocate space for *natab*.

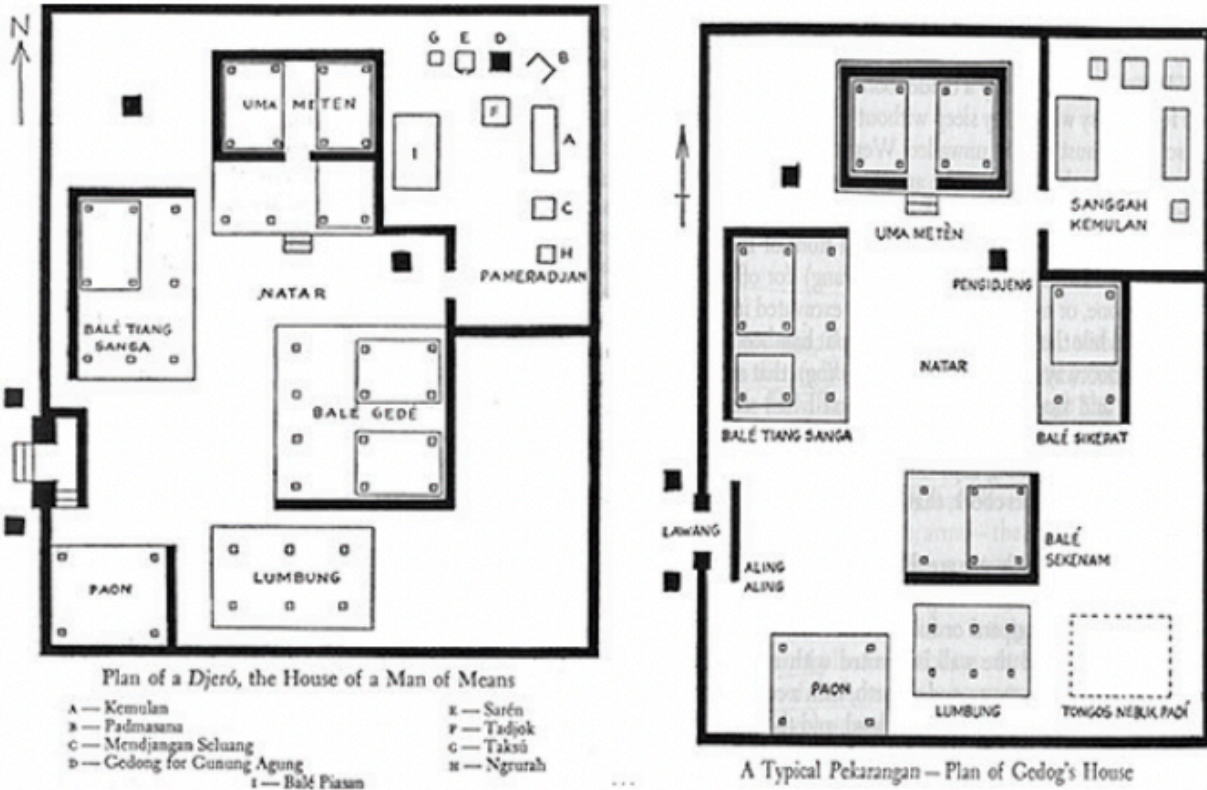


Figure 17. The intricate layout of covered and exposed areas in a traditional home compound in Bali. The *natab* (central courtyard) is centrally located, with the pavilions constructed around it following the Sanga Mandala principle. Sc: Covarrubias (1937).

The empty space is encircled by residential structures, each open and oriented towards the courtyard's center (Figure 17). The *natab* holds profound significance in symbolic alignment with the central point of the orientation system. This central courtyard functions as a conduit linking the residential buildings and guiding the way to the family temple. It also serves as a vibrant living space, adorned with plants, domesticated animals, and individuals engaged in various daily activities. During ceremonial events, this central space transforms into an opulent ceremonial reception area. Occasionally, temporary structures are erected in the *natab* to accommodate and shelter guests, with bamboo frames and panels providing shade and protection from the sun.

The *Teba* (C) is the backyard, the green open space behind the house. It is located behind the house compound, behind the back perimeter wall. The *teba* functions as a green open space for cattle (the common animals are cows, pigs, chickens, ducks, and goats), or a fruits plantation. Some other plants that are grown in *teba* are the plants that are used in rituals and ceremonies, plants with medicinal benefits, and plants for consumption. In the past, the agrarian society used the *teba* behind their house to support their economy by planting vegetation that also has economic value.

5.4.2. Celebrated Entrances

The gate of the residential compound and house temple are decorated. The entrance is a system of space and structures: *Lebuh*, *Angkul-angkul*, *Apit lawang*, and hierarchy of floor levels. Each component is a seat of a God or beings of the underworld, and treated accordingly with offerings and particular built structures.

Angkul-angkul and Apit Lawang

In all the houses I visited in traditional villages in Bali, each constructed an entrance gate to access the house compound, which they call *angkul-angkul*. These entrance gates consist of a pair of pillars with tiled or thatched roofs. The distance between the left and the right pillars is only sufficient for one or two people to pass through, and these pillars are often adorned with stone carvings. The *angkul-angkul* is taller than the surrounding stone fence of the house compound. Typically, these *angkul-angkul* gates are elevated above the ground level, allowing for the inclusion of several steps.

At the front of the *angkul-angkul*, or sometimes integrated with it, there are *apit lawang*, two small shrines flanking the path or corridor of the entrance gate. These *apit lawang* are small pillar-like structures with a small, roofed space at the top. The space serves as a place for worship and the placement of offerings dedicated to the divine manifestations protecting the house. The manifestation of Sang Hyang Widhi Wasa residing in the *apit lawang* on the right is Sang hyang Maha Kala, while on the left is Sang Hyang Adi Kala.

Lebuh: Lebuh Rumah and Lebuh of the House Temple

The small courtyard or open space right in front of the *angkul-angkul* is called *lebuh*. For the Balinese Hindus, this space is where Sang Dhurga Bhucari and Sang Kala Nguyuh reside. Therefore, two *segeban* offerings (offerings for Bhutakala) are usually presented at this spot (Figure 18). Indeed, the guardians of the entrance and the *lebuh* are part of a security unit known as Sang Panca Kala, responsible for overseeing both the *lebuh* and *angkul-angkul*.

Each of Sang Panca kala has authority over specific locations. Sang Maha Kala resides in the space on the right of the apit lawang. Sang Adhi Kala on the left of the apit lawang. Sang Kala at the angkul-angkul gate, Sang Dora Kala at the aling-aling – the wall behind the angkul-angkul, and Sang Sunia Kala in the front courtyard of the gate, where offerings for Bhutakala are presented.

A priest in the interview

The priest mentions that within the house compound, four sacred empty spaces must be preserved, namely (1) the *lebuh* in front of the *angkul-angkul* gate, (2) the center of *natab* (central courtyard), (3) the *lebuh* of sanggah pamerajan (house temple), and (4) the center of *natab* (the courtyard of the house temple). Theologically, all these places serve as central points in the ceremonies where offerings, in the form of *sesajen*, are presented to the Bhutakala, beings from

the underworld. In this context, Bhutakala is understood as a lesser beings “hired” to maintain the harmony and balance between Bhuana Agung (macrocosm) and Bhuana Alit (microcosm).



Figure 18. The image shows offerings on the *lebah* in front of the *Angkul-angkul* gate. The picture is taken in Desa Pangsang, 2022. Image taken by the author.

5.4.3. Distribution of Functions: The Pavilions as the Frame of the Courtyard

Ideally, the Balinese house follows an ideal pattern and is built according to the treatises. A collection of pavilions or structures is built around a central courtyard, each meticulously positioned to reflect a distinct hierarchical arrangement and directional orientation.

is also the origin of the name ‘bale daja,’ derived from its positioning in the *kaja* direction. Constructed on a foundation of brick and stone, this rectangular building is enclosed by four (almost) blind walls and features a singular door at the middle of the courtyard-facing façade. The bale daja boasts an elevated base, accentuating its importance.

The bale serves a multitude of functions, with interpretations diverging, and this multifunctional nature of the bale daja results in its having several names or alternative labels. It could be associated with “childbirth,” rooted in *metu*, the act of being born or entering the world in Balinese, so bale daja is also known as *meten*. Alternately, it is recognized as *paibon* or Pa-ibu-an (the place of the mother).

The bale daja offers sanctuary during meditative periods preceding significant ceremonies. Furthermore, it also functions as both the safe haven of the house and the living space for the family head, a parent’s quarter, or lodging for the elderly. It provides shelter, privacy, and seclusion, and also functions as a repository (*gedong/simpen*) for family possessions and sacred artifacts, so it is also known as bale gedong. During wedding ceremonies, the bale daja also functions as the sleeping room for the newlyweds.

Bale Dangin

Bale Dangin is a building located in the *kangin* (sunrise direction) zone of the yard and is situated downstream (*kelod*/downstream) from the house temple. Physically, this building is usually open on two or three sides to facilitate its function as a place for conducting *yajna* ceremonies. Bale dangin can have 6, 8, 9, or 12 structural poles with an elevated floor. Besides its main function for *yajna* ceremonies, it also functions as a sleeping place for grandparents and as the initial resting place for someone who just passed away before further death ceremonies.

Bale Dauh

Bale dauh, situated in the western (*kaub*/sunset) section of the yard, features a rectangular shape with a terrace and enclosed room. This structure can serve as a guest bedroom, a space for unmarried children, or as the sleeping quarters for parents. Due to its function as a small house or overnight hut, this building is also referred to as *loji*.

Pawon, the Kitchen

Pawon, the kitchen, serves as the cooking area, with its floor intentionally set at a lower level compared to the bale dauh. The general Hindu community in Bali believes that the god residing in the pawon is Sanghyang Brahma because the pawon is associated with red-colored fire, which is used as a symbol of Sanghyang Brahma. Brahma is regarded as the ruler and the provider of life. Hence, for Balinese Hindus, the kitchen functions as the site for the purification of all impurities. Traditionally, this forms the basis for placing the pawon in the south (*kelod*) or southwest (*kelod-kaub*) direction, as the direction governed by Bhatara Brahma.

The placement of the pawon in the *kelod* direction is believed to have positive effects, as it is thought to bring a lot of good fortune or attract blessings in the form of food, such as rice and other food items. In essence, it is seen as a bestower of wealth. In this context, the term *kelod* is used to denote the direction towards the sea. According to Balinese Hindu beliefs, the sea is regarded as the confluence point for all impurities where they gather to be purified and regain their sanctity. Cosmologically, the sea is considered an inherently sacred space immune to impurities. The significance of the sea closely corresponds to the *skala* and *niskala* function of the kitchen.

Jineng/ Rice Granary

The jineng or rice barn serves as a storage space for rice and is typically found in the homes of rice farmers or landowners. Constructed in rectangular shapes, the jineng building features either four or six structural pillars. The distinctive high-curved, pointed arch roof is designed to maximize the storage space for the rice in its attic. The ground floor of the jineng is generally not heavily utilized, often kept simple in design. The raised floor beneath the roof space is sometimes used for sitting or as a workspace during some ceremonies. Some houses that I visited used the raised floor as the space to prepare the offerings and store some materials for creating the offerings. The strategic placement of the jineng next to the kitchen supports the function of the raised floor for various preparatory activities of the kitchen, either to support cooking activities in the kitchen or as an extension of the kitchen workspace. Typically, jineng is situated in the southwest (*kelod-kauh*) direction.

5.4.4. House Temples and the Sacred Shrines

Each house builds a house temple at the *Utama* zone (*kaja-kangin*), the holiest part of the compound that is dedicated for the Gods and ancestors. In addition to the house temple, a Balinese Hindu house builds other shrines (Penunggun Karang, Pelinggih Surya, Pelinggih Indra Blaka), place offerings at other particular locations, and build micro shrines (*pelangkiran*) inside the house.

In the house temple, merajan, we build what we call as the tri linggih (three shrines): taksu, rong telu, and surya. In Hindu sacred places, the number of the shrines is always odd. Suppose we live in a small house in the city with a limited land, in the remaining land, we can build one Padma shrine, because Batara Samodhaya manifests in the Padma Sari shrine, as the core shrine. So, if the space is limited, we can combine the Tri Linggih into one Padma shrine. In more extreme cases where space is even more limited and there is no space to build Padma shrine, we can create a pelangkiran, a micro shrine. For instance, in a dorm room, we can place the pelangkiran on top of a wardrobe.

So, the stages of creating a place of worship: pelangkiran if there is no space, Padma Sari if space is extremely limited, and sanggah kawitan as tri sanggah, not yet a family shrine, if we have the space.

A priest in the interview

The House Temple



Figure 20. House temple in a house in Ubud region, 2022. Image taken by the author.

In general, residential land can be divided into three levels of sacredness. The most sacred level is known as Utama Mandala, the area where sacred buildings are located to worship Ida Sang Hyang Widhi and the ancestors. This sacred area is situated in the northeast corner of the yard. The place of worship is called sanggah kemulan or sanggah pamerajan (Figure 20).

Etymologically, pamerajan means the place of kings. The kings referred to here are the family ancestors and prominent figures such as kings and aristocrats who, due to their contributions, are regarded with the same reverence as Bhatara/God and have temples built for them. The function of sanggah pamerajan is as a sacred place to worship Ida Sang Hyang Widhi Wasa and

the ancestors and as a venue for activities related to religious teachings. Because sanggah pamerajan is a sacred place, it requires a special place declared sacred in every house compound.

Pangijeng Natah or Palinggih Surya

From conversations with priests and homeowners in Bali, it seems that no space, no matter how small, is devoid of the presence of the divine. This is evident in the *natah*, the central courtyard of the house compound, which symbolizes the *catus patha* or the empty space at the crossroads of four directions. At the upstream of the *natah*, homeowners construct a shrine referred to as the *peinggih natah* or, by some homeowners, as *pangijeng natah* and *surya natah*. This shrine faces west (*kaubh*) and is believed to be the dwelling place of Ratu Anglurah Wayahan Tebeha (Sudarsana, 1998). Ratu Anglurah Wayahan Tebeha is considered the ruler of mountains, forests, mysterious places, and the guardian of the crossroads or *catus patha*.

Palinggih Panunggun Karang

One striking element that captured my attention during my visits to houses in Bali's villages was a distinct shrine, standing independently within the *natah* courtyard and separated from the house temple. The homeowners referred to this shrine as the dwelling place of Ratu Nyoman or Bhutakala. According to one homeowner, the presence of beings from the underworld could significantly influence the lives of the residents.

Penunggun Karang is a palinggih located in the yard as a place for "being from the underworld", the guardians. It is a seat for Kala, and he is not a god. Kala is a ruler of the underworld. He rules the positive and negative energy of the underworld. We want to invite his spirit and his positive energy to protect us. If we are not trying to get to know him, he is not in the mood to take care of us. Consequently, we must communicate with him. Balinese Hindus always give food and share it with those who care for them. Balinese Hindus do not worship Kala, the one who sits on the Penunggun Karang, but treat him as a watchman, a guardian. If we don't respect and take care of him, he

could open the door of negative energy, so that wrongdoers and malicious intentions can break into our homes.

A priest in the interview

These entities can bring blessings or, conversely, disrupt the household, leading to illness, disasters, or conflicts. Homeowners faced a choice: they could allow these beings to roam freely or engage in negotiation, coaxing them into becoming guardians of the house compound (Figure 21). Another homeowner likened the Bhuta residing in the penunggun karang shrine to security guards, emphasizing their protective role in overseeing the well-being of the residence.



Figure 21. Image of a Pelinggih Penunggun Karang in a house in Tabanan, 2022. Image taken by the author.

The significance of the penunggun karang shrine in Balinese Hindu culture extends beyond its physical presence in the corner of the traditional house compound. This shrine functions as a sacred spot devoted to the veneration of guardian spirits of the house compound. Balinese Hindus attribute its occupancy to the divine entity Sanghyang Durga Manik, along with its

guardian, Ratu Anglurah Nyoman Sakti Pegadangan, acknowledged as the ruler of all Bhuta (Sulistyawati, 2018). In theological context, the penunggun karang shrine holds profound importance during ceremonies involving the presentation of offerings, known as sesajen, to the Bhutakala.

Kanda Pat

On the *natab*, right before entering the Bale Meten in several houses in Bali, I saw offerings placed on the right and left side of the entrance. Sometimes, there are clear signifiers, such as small stones, while in some other cases, they simply place the offerings on the ground.

The Balinese Hindu believes that each person is born together with four siblings, the Kanda Pat. These four siblings are defined as the four forces of God that accompany a person from birth to death. These four siblings include getih, lamas, yeh nyom, and ari-ari. We must remember that Hinduism values these four elements. The Kanda Pat grows with us. They guide us and keep us safe. We can communicate and command the Kanda Pat.

A priest in the interview

According to the Lontar Kanda Pat Rare document, when a person is born into the world, they are accompanied by Sang Catur Sanak (the four siblings), namely ari-ari (placenta), yeh nyom (amniotic fluid), lamas (vernix caseosa), and getih (blood). These four elements become the true siblings who serve as the enduring companions of an individual from birth to death. After undergoing a purification process, they are wrapped and placed on a horizontally split coconut, then covered with a white cloth and sacred inscriptions. This bundle is planted in the house yard, right in front of the Bale Meten. If the newborn is male, the Kanda Pat bundle will be planted on the right side of the Bale Meten exit, while for a female, the bundle will be planted on the left side.

Pelangkiran

While conducting spatial observation, I also noticed that residents often create small, decorated trays that they hang on the wall. The offerings on the tray signify that the trays are intended for specific worship activities. The residents refer to it as *pelangkiran*, derived from the word *langkir*, which can signify a mountain or a sacred place for worship (Figure 22). Its purpose is to worship God, God's manifestations, or ancestors. Despite its small size, *pelangkiran* exemplifies the flexibility inherent in the Balinese Hindu's practical implementation. The manifestation of the revered deity aligns with the designated placement of the *pelangkiran*. The Balinese Hindus do not confine *pelangkiran* to a single location; it can be found in every room, kitchen, shop, or even boat and car.



Figure 22. Pelangkiran attached to a kitchen wall of two houses in Tabanan, 2022. Images taken by the author.

Its position in the bedroom is believed to be associated with the mythology of Kanda Pat. The Balinese Hindus believe that Kanda Pat would roam and cause disturbances, so people create the pelangkiran as the dwelling place of the Kanda Pat, preventing disruptions and ensuring the protection of the residents from potential calamities. Regarding pelangkiran placement, it is advised to align it with the head or place it in the east or north part of the room. Northeast or *kaja kangin* is considered the most favorable. Balinese Hindu could also place the pelangkiran in the living rooms, dedicated the pelangkiran to Ida Batara Semara Reka and Semara Ratih to ensure marital harmony.

For those who have migrated, pelangkiran serves not only as a place for worship but also as a means to honor ancestors, especially in the absence of a family temple due to physical constraints. Through pelangkiran, individuals can stay connected with God and their forebears, even when living far from their hometown. It becomes a conduit for prayers, spiritually ensuring the health and protection of parents and family members.

Palinggih Indra Blaka

Living in a Balinese house for several months, I have come to realize that I often encounter other shrines in the dwelling environment that I was previously unaware of. These shrines are frequently erected in front of the house, outside of property boundaries. However, the majority of the houses do not feature these shrines. Specifically, these shrines are constructed in front of houses that are in a condition resembling a satay skewer. A few years back, I delved into feng shui, and the presence of these shrines reminds me of homeowners' reactions to 'poison arrows' directed at their associated residences. My curiosity was answered through discussions about the

attitudes of the Hindu Balinese community in interpreting the landscape where a house will be built.



Figure 23. Pelinggih Indra Blaka in Peguyangan area, 2022. Some shrines are constructed not to mark significant natural elements but to counteract negative energy. In areas identified as “Karang Panes,” which are thought to harbor adverse forces, Balinese Hindu believe that establishing Pelinggih Indra Blaka shrine neutralize these energies. Image taken by the author.

The Balinese Hindu community believes in the balance of natural energy and strives to choose land believed to possess positive and harmonious energy to create well-being for its inhabitants. They observe the slope of the land, the natural surroundings, the color of the soil, and even the scent of the soil in the location where they will build their house. Land that has negative energy is referred to as Karang Panes (hot land). If humans are compelled to reside on and inhabit this Karang Panes land, they are then advised to establish a shrine specifically to seek protection from Sang Hyang Dirgamaya, a shrine where Sang Hyang Indra Blaka resides. The Undagi and or the priest will assist homeowners, guiding them to the appropriate location to construct the pelinggih Indra Blaka.

5.5. The Players: The Carpenter, The Priest, and the Owner's Perspectives in the Construction of a House

It seems clear that the spatial organization in Bali is deeply rooted in religious beliefs and the sacred order of the natural world, where gods and humans coexist. Central to this arrangement are individuals who serve as custodians of this sacred framework, possessing profound knowledge about how the sacred and social spaces are structured and the symbolic significance they hold. Among these custodians are the priests. They hold esteemed positions as religious leaders and experts within Balinese communities.

The priests are responsible for guiding the proper implementation of “the model,” determining the ideal location and orientation of houses and temples, believed to be essential for fostering a harmonious and prosperous life. While priests play a significant role in shaping this spatial order, it is essential to note that they are not the sole bearers of this knowledge. Other individuals, such as Undagi (traditional Balinese carpenter-architect), also possess a deep understanding of spatial organization, contributing to the intricate fabric of Balinese space and environment.

5.5.1. Understanding the Carpenter and the Priest's Perspectives

Recently, the caste definition as “colors” (defined as “role”) is popularized, instead of the traditional definition that interprets caste as levels in a society. As a society, Balinese Hinduism contains groups of people that have different “colors” that complete the society by playing each role and occupation. For a Balinese Hindu, an occupation is part of a religious responsibility that enables a person to contribute to the community. Balinese use the term *ngayah* to express this responsibility.

It is difficult to define, and it should not be defined as a singular meaning because a word, a term does not only have a singular meaning. It is more complicated than that and should be influenced by our perspective. In the simplest definition, ngayah is an action that is done with sincerity.

A priest in the interview

Ngayah, is also a form of *Yadnya* (Balinese Hindu worship), *Yadnya*'s deeper meaning is a holy sacrifice. We offer something without expecting anything in return. Worship and providing offerings are samples of *yadnya*. Furthermore, *ngayah* means doing something with sincerity, without expecting a reward. So, a person can do *ngayah* by playing a musical instrument gamelan at the temple, cleaning the temple, cooking or driving to support religious activities, and producing banten or offerings; those could be considered as *ngayah*. In the spiritual context, a priest is *ngayah*, giving spiritual service by doing his profession, by becoming the translator of Sang Hyang Widhi: the God. *Ngayah* is not a ritual. A ritual is a form of communication with God, while *ngayah* has a characteristic of helpfulness in society; a characteristic of helping each other without expecting a reward.

In *ngayah*, everyone can participate in religious activities. The keyword is participation so that every part of the community can participate regardless of their background and abilities. It is not an egalitarian value because everyone still holds their status and social class. It is a way to invite people from different colors of the society to participate and be positioned based on their expertise and ability. From the perspective of Balinese spirituality, a person does not choose a profession. Besides hard work and the process of learning, people are having their profession because they are destined and cannot avoid their destiny. They do their work because they are destined, and they do it sincerely.

I would not acknowledge myself as an accomplished master carpenter. Because based on a Balinese saying "eda ngaden awak bisa, depang anake ngadanin." It means do not proclaim yourself, let others name and judge you based on your work. The philosophy behind the Balinese work is that

they shall not proclaim themselves as great masters in their field, but they will let their work do the talking for them.

Pak Yan, a master carpenter

Ability and knowledge are blessings. If someone becomes an expert, it means that the person received a gift from the God. As I lead rituals and ceremonies, I ask a permission from the God to borrow God's mantra. I am not myself; I am here because God has kept me here. Balinese proverb mentions "eda ngaden awak bisa, depang anake ngadanin." Do not think that we are experts, we should let other people judge us.

A priest in the interview

In the contemporary world, people struggle to advertise and sell themselves. In contrast, the Priest in the interview mentioned that he always hoped that nobody would come. However, the Priest would happily help anyone who come and asks for help and answers. The Priest carries a big responsibility because a Priest's advice is mandatory. In the context of rituals and ceremonies, the Priest's words are God's voice, he is God's extension in this human world. Some Priests are famous for different topics, although in general, they are the living source of Balinese Hindu knowledge. Any solution to any problem would be based on the basic philosophy.

Pak Yan, the master carpenter, gained his knowledge from his parents and through apprenticeship. His grandfather and his father were a carpenter, and experts of Balinese wood carvings. He answers my curiosity regarding the difficulties of finding an Undagi. There is not much available information about this master carpenter figure, despite the vital role they play as the keeper of traditional spatial principles, and commonly mentioned as a central actor in the construction of Balinese traditional buildings. According to Pak Yan, it is unlikely and would be extraordinary that a person will advertise himself as an Undagi, except if somebody else mentions or identifies you as an Undagi. No real master should advertise, and he would let people know him as they appreciate his work. As the building does not have any direct pointers to the master carpenter, a conversation with a local

knowledgeable figure is needed for a foreign researcher to locate a prominent Undagi. Usually, people identify an Undagi from word of mouth. He states that only an overly proud person would advertise himself as an Undagi. He works for God, he does not want to go beyond His power, and he would rather be humble.

For me, I do not have the courage to face the consequences. Sometimes, when I do not pay attention to my ritual, I easily forget things and cannot concentrate on my work. It is difficult at work. I must ask for sacred permission, and the solution will be given, a way to solve my problem appears. This is based on our belief. I will be the one who constructs the building elements at the project site. It is my responsibility. During this construction process at the project site, the owner is not involved in the construction works. The owner only suggests good timings for the project and is not involved in the wood joinery works or other construction works.

Pak Yan, a master carpenter

In Balinese carpentry and building works, *sikut*, the traditional measurements, is known. Every measurement of the width and height of a building component has a name. The ancestors of the Balinese provided these measurements. Besides that, every profession/occupation will have a shrine/*pelelingih* for every type of occupation. In the workshop, the master carpenter also has a *pelelingih*. Before a carpenter dares to do a project as an independent carpenter, there is a ceremony called the *mintanen mrajapati*. Measurements are sacred, so before someone officially declares himself a carpenter, he will have to do this ritual/ceremony. The objective of this ceremony is to request an intangible permit. The objective of the ritual is to ask the Gods and Ancestors for their permission before a person becomes a professional. This spiritual permit is mandatory for the carpenter. The main *tukang*, the carpenter must have this spiritual permit. After he gained this permit, every time he started his daily work, he also had to request spiritual permission, so every result was permitted. The reason is that when the carpenters do the work, they do it based on our worship of the Gods and ancestors. We do the work without expecting a reward. By doing our profession, we are doing a spiritual service. Since most traditional Balinese are affiliated with sacred religious components, a

Balinese cannot freely build and create such physical components. These traditional components are considered sacred and only the ones that hold the spiritual permit are allowed to create the components. Hence, the qualification is divided into two categories: the pragmatic qualification and the *niskala* qualification. The tangible and intangible qualifications.

In the work of a master carpenter, each component is based on a particular reference. The owner sometimes comes with a measurement. For example, an owner can come and request a specific height, plus the width of two fingers. It is called *urip-urip*. So, this measurement could come from the owner. *Urip-urip* means enliven. A person who understands will learn about his own *urip-urip* and request the carpenter to build according to this measurement. If the owner does not understand his own *urip-urip*, he could trust the carpenter to give the measurements. This measurement will be based on the size of body parts, and a carpenter could give his measurement. The measurements are intended so that a building will have a life, it will have a soul or spirit. Furthermore, ornamental patterns are not mandatory. If the owner asks for a particular pattern, the carpenter will make the ornament according to the owner's request. It depends on the owner. It could be based on two things: it could be based on the owner's wants, or it could be based on the owner's financial power. The owner could mention that he has budget limitations and ask for advice on the possible ornaments that are affordable and within his budget.

If a client has an empty land and wants to build a complete traditional building, the master carpenter will guide him from the beginning. He will start by enlivening the land with a ceremony. He will start measuring, or the client could come up with his own measurement and decide the size of each building. If the client is not ready with his measurement, the master carpenter may ask him to go to a *griya*, a priest's house, to ask for an appropriate measurement. The client usually has a priest that he is attached to. Hence, he should also communicate with this priest, particularly regarding the

measurement. The client can also take his priest to the master carpenter's workshop, and they can have a conversation about the project. The master carpenter will not prefer to use a general measurement and would suggest the client communicate with his priest regarding measurement because each region in Bali may have different variants and different details of measurement. If they agree on the project, the master carpenter will come with the priest to the building site, and they may measure the site together to find an appropriate measurement for the owner/ client. Only afterward, the master carpenter can start the work.

The priest will philosophically measure things based on the priest's literature and based on the owner's body size. Pragmatically, in order to make a beautiful building it depends on the builder, the Undagi. Within this process, negotiations may happen. For example, the Undagi may have a professional argument and suggestion to modify the measurement. The width, or the length, makes the building beautiful. The priest may also communicate the Undagi regarding the size and measurement, and ask the Undagi his professional opinion, about the beauty and appropriateness of a set of measurements. An Undagi may suggest an adjustment to a measurement, whether to add or reduce size. It is a common thing that a Balinese has a spiritual guru. This spiritual guru is their priest. The client should visit the priest in the griya and ask about a measurement. Within this measurement, the *niskala*, the intangible, is located. It is always about the balance between the *skala* and the *niskala*, between the tangible and the intangible. A project that is built in the Singaraja area will be different from the ones built in the Tenganan area. Hence a person may want to be approved or permitted by their spiritual guru, the priest that they believe, most likely by the priest from their place of origin. An Undagi is the executor of the work and building consultant, equipped with the knowledge of workmanship.

An Undagi may work anywhere. However, they have to follow local rules. When a master carpenter has a project in another village, he cannot bring his village custom/habit with him. There will be a kind of negotiation with local customs. He needs to look at local habits and conventions. Sometimes it also depends on the owner's knowledge. If the owner has the basic knowledge, the conversation between me and him will be longer, because there will be much to be discussed. They may discuss the *sikent*, the measurement, and many other things. However, if the client does not have the basic knowledge, the conversation will be shorter because he will depend on master carpenter's knowledge and trust the master carpenter's decisions.

Rincian. Balok-balok 8. Sempadan. Ukir

20.	MHR jambang ukir SMB.	$1400.000 \times 20 = 28.000.000.$
8.	Sala. ukir SMB	$1300 \times 8 = 10.400.000.$
9.	canggah wangi. SMB	$400. \times 9 = 3600.000.$
6.	kapu? kotak jati ukir	$500 \times 6 = 3000.000.$
	tugun ukir SMB	$= 500.000.$
1	langit? 2201 20 x 10 SMB	$= 3500.000.$
1.	Grudo. pewel	$= 3000.000.$
2	waton payas KF.	$= 4500.000.$
1	par be jati ukir	$= 6000.000.$
1	sanggulad ukir	$= 2000.000.$
	(kap) KF./kumpang.	
	igel? KF.	} 35.000.000.
	sibob. KF ukir.	
	kolong KF.	
	SERING KF	
	Reng KF.	
	payas kolong bak lengkap.	$= 9.200.000.$
	ongkos.	$= 2.000.000.$
	total	115.700.000

Figure 24. A page of Undagi's workshop note, showing the cost of a wooden pavilion, 2022. Image taken by the author.

Usually, the conversation would start with the owner's description of his wants, and based on his description, the Undagi would suggest the height of the columns, the distance between columns, the

width of the building, and other measurements. They would also discuss the roof materials. In general, the conversation would cover the topics of measurements and sizes, the building materials; the type of wood that is going to be used in the construction process. The design of the ornaments and carvings such as floral designs or other ornamental types. The price usually being discussed at the end of the discussion. Hence, the topics of the discussion include the dimensions, materials, design, and price (Figure 24).

An owner who understands the Balinese principles may also suggest the dimensions, such as the heights and the type of wood. He may also discuss the good time to start the work. There is a generic term *Nuasen* in Bali, which means “starting an activity”. For example, starting the activity of dancing, wood-crafting, playing a musical instrument, et cetera. *Nuasen* means starting an activity on a good day, to expect a good result. A big ritual in the temple also may include this *nuasen* activity. The point is choosing a good day to start working, expecting safety and success. Before the Undagi start the work, he would let the client know that he is starting my work. A client may also request a particular date that the Undagi start the work. If he does not provide the date, the Undagi will decide for himself. At the beginning of the work, he personally starts the work, before he lets the workers help him or continue the work.

During the construction process, rituals and ceremonies are involved. Every morning the Undagi does a morning ritual and offering at the *peinggih*, and every six months he does a major ritual, to respect and worship the God. This ritual is called the *tumpak landep*. The *Tumpak Landep* ritual is a ritual to respect the *Pasupati*/weapons or tools which comes in different forms of weapons, or in modern times, in many kinds of equipment that people use to do their work. Hence, this ritual is for his work/ occupation as a master builder.

The ritual for the client would be different. For the client, the Undagi provides a good date to start the work, and a good date to end the work. Whether the project will be finished in six months or a year, the Undagi will want the project to be finished at a particular date. There will be a good date to finish the works in his workshop, and a good date to finish the work on the project site. When the project is finished, the Undagi will also provide an offering, *ngebanten*. In the Undagi's everyday routine, he always provides offerings, *canang*, *ngebanten canang*, offering every morning to ask for safety and blessing.



Figure 25. A Pelangkiran (small shrine) hanging on a wall of Undagi's workshop in Ubud, 2022. The Undagi does his ritual and puts his offerings every morning on the Pelangkiran. Image taken by the author.

I shape the building and woodwork and outsource the small details. These detailed decorative elements will be sent here, and I will be the one who is responsible for putting these building elements together. Hence, the finishing process of all woodwork is also done by my workshop. I will be the one who constructs the building elements at the project site. It is my responsibility. During this construction process at the project site, the owner is not involved in the construction works. The owner

only suggests good timings for the project and is not involved in the wood joinery works or other construction works.

Pak Yan, a master carpenter

In the mass production of building parts, for industry, a Balinese do not need to set a good date. However, for custom, traditional projects, the Undagi shall follow the good day. He needs to arrange the good days to start, to finish, and the kinds of rituals that should be done. Clients who are aware of the traditional principles would also bring their *banten* or offerings to the workshop on the day the Undagi start the work. They may also have a good day to pick up their orders from the workshop.



Figure 26. Pak Yan's workshop. The Wood is carved and decorated in the workshop in Ubud, 2022. Images taken by author.

Even if the work in the workshop is finished, they will take the orders according to their good day. They will wait until the good day comes. After the building components are transported to the project site on a good day, the construction of the building will wait for another good day to start

the construction works, and the construction works will need to be finished on another good day.

There are many good dates that the stakeholders should pay attention to. However, according to the Undagi, most of the clients do not want to know the process and choose to let him decide the details. In the villages, people really care about the details of the work and the good timing. Most city people pay less attention to these traditional principles, and not considering good timings or good days. In most cases, they only care about the good timing for the finalization of the project, the day to install the roof; during the *puinama*, the full moon.

5.5.2. The Sacred Things, Based on the House Owner's Knowledge and Interpretations

In Bali, the seen and unforeseen, the tangible and intangible always construct the whole story.

Balinese are tied to their origin place, and most Balinese know where they came from. Although they may not be able to describe each ancestor's detail, or how many generations have passed, they are able to describe the origin of their family. The family tree is not commonly recorded, but they can see the number of the older generations that lived in a house before them, by looking at the merajan/ house temple. The size of the merajan could also indicate whether the house is the main house of the family, or not.

To provide an illustration, I could describe my ritual places during Galungan day. I start at my own house. Since I also have a house in Renon, I visit the house and provide some offerings. Afterwards, because my family originated from Ubud, I take my family to visit the origin house in Ubud. The origin house has the main merajan for our family. I also have relatives in Gianyar. So, after the rituals in the family temple and Village temples in Ubud, our family do an additional visit to Gianyar area to some relatives' houses. The destinations are all known houses that my ancestors, the generations before me, lived in.

MR, a house owner

The affiliation of a Balinese to the Tri Kayangan Temples or the village temples is defined by the location in which the person is listed as a member of Banjar Adat (a hamlet or a subdivision of a

traditional village). In the most common case, this banjar membership is at the location of the origin house of the family. However, a person could choose to be a member of another Banjar Adat. For example, if a person lives in the city, he could choose to be a member of the Banjar Adat based on the location of his house. A Balinese could have more than one Banjar Adat membership, but this is very rare because of the many obligations of being a member of one Banjar Adat. A Balinese should be involved in every communal activity of his Banjar Adat and Desa Adat. The activities could be religious rituals in temples, marriage, death, and many other communal activities. Most timings of these activities are not scheduled regularly, so people may have difficulties accommodating the time and schedule of Banjar's activities. Some people choose to pay the fine to local Banjar Adat or Desa Adat because they cannot provide the time to be involved in such activities. However, it is not the fines that worry the Balinese, but the social judgments from the other community members.

Some people may have different personal stories about their reasons. Religion has standards, but in practice, each individual may practice it differently based on individual belief and practice it based on personal ability. I try my best to follow the rules of tradition. However, if I could not accommodate the rules, I did not feel forced to accommodate those rules.

KS, a house owner

Besides attachment to the village temples, Balinese Hindus also feel an attachment to smaller shrines and sacred natural elements in the public spaces. The attachment is different for each Balinese. For example, a trader will also do rituals at Pura Melanting, a local temple that is dedicated to traders. A farmer may do rituals at Pura Subak, a temple for farmers. People who live near the river occasionally put some offerings at a Tugu Penyawangan, which is a shrine that is located next to the river, because they believe that the confluence of two water currents is *tenget*, *angker*, sacred. Each Balinese Hindu may have a different calling and attachments to these sacred points. Religiously, some places are considered as *tenget*. The confluence of water currents, the intersections, valleys,

these places are considered *tenget*. Besides those places, a Perempatan Agung, the big intersection next to the market also considered sacred. The ngaben ritual, the ritual of burial, will include this big intersection in their route to the cemetery. People put offerings at these sacred locations. The priority is the sacred places within the house, in front of the gate, and the next priority is the sacred places surrounding the house. It is also helpful to understand that they will put offerings at the sacred points that they pass every day. The explanation should include the tangible and intangible, the *skala* and the *niskala*. The symbolization that the Balinese do, is related to the *niskala*, the intangible. It means that the Balinese respect the external power that they believe in. The Balinese believe that the unseen exists, and the unseen has power that could influence human life. However, the placement of offerings in every Balinese Hindu house may have consistency. The owner will put offerings at their *pelinggih*, *pelangkiran*, and house temple.

Each house, each building, each *pelinggih*, has *pengurip*, the unseen content that is brought to life through rituals. There is a particular *banten*/offering that serves the function of bringing the unseen to life, to activate them. Hence, the Balinese structures have different qualities from regular ordinary structures. The Balinese sacred structures went through the rituals that animate these structures. The sacred structures have higher-level rituals and offerings and are treated differently. This influences the status of sacredness, and higher importance spiritually. The spiritual energy needs to be recharged regularly, through the offerings. Once a structure is brought to life, the Balinese believe that it could support the harmony of the owner's life. However, a lack of treatment could create negativity and conflicts.

A mistake in design, inaccurate measurements, and inaccurate *sikut*, would also create negativity. Hence the Balinese believe that they should consult the people who understand the religious spatial principles before they build an important structure. *Sikut* means measurements that are related to

pengurip, the sacred measurements that animate or enliven the structures. It is not only about the measurement, but a measurement with meanings. The risk of negative spiritual energy and calamity may happen less in non-Balinese houses. These stories are more common in Balinese sacred structures. Balinese believe that wrong traditional measurements could cause conflicts. That is the reason for consulting a *sulinggih*/a priest, and an *Undagi* before the construction process started. These people are blessed people with spiritual abilities, formalized through ceremonies and rituals. They are the ones who have permission and the ones who would be responsible and receive the risk if they made a mistake. Ideally, they lead the decision-making of any religious process, including the design of sacred elements, and are held responsible for design flaws, spiritually.

The minimum sacred component that a house should provide is a *Pelinggih Padma* as the house temple and a *Penunggun Karang* on the house yard. *Pelinggih Padma* is a representation of the God, while *Penunggun Karang* is the guardian of the house. Having these two components are enough for the owner to serve the daily spiritual life. Besides the *Pelinggih Padma* and *Penunggun Karang*, there are smaller common sacred components called *pelangkiran*, the micro shrines. These micro shrines are usually located in the kitchen, or in every separate building. Every individual building is animated, and this small shrine in every building is a symbol that the building is enlivened and is a place to put our daily offerings.

If a person cannot afford to conduct a ritual or ceremony, he does not have to do it. However, if a person is able and refuses to conduct the ritual and ceremonies, he has humiliated himself. A Balinese Hindu should fulfill the ritual and ceremonies accordingly. If a person is wealthy and only spends the minimum, he is being ungrateful. The rituals and ceremonies have their levels: Nista the lowest, Madya the middle, and Utama the highest. If a Balinese Hindu cannot afford a ritual, he could choose to do the simplest form of ritual, while a wealthy and abled Balinese Hindu should choose to do the Utama, the highest level of the ritual and ceremonies. So, it depends on the calling and ability. The rituals and ceremonies should not be a burden, there will be a solution to every context.

MR, a house owner

From the religious speech I heard, it is alright not to follow the traditional rules 100% because we have very limited conditions. If I refer to the rules of tradition, applying the spatial rules in such a small land is challenging. I try my best to follow the rules of tradition. However, if I could not accommodate the rules, I did not feel forced to accommodate those rules. The main thing that I follow is the rule regarding the location of the main sacred space of the house: the house temple. The traditional rules mentioned there this house temple should be located at the northeast of the house and that it should be in the highest place. Hence, in the house, the house temple is located on the third floor, in the northeast part of the house.

KS, a house owner

If a Balinese live in an apartment or a small house, the minimum they can provide besides the Penunggun Karang and Padma would be one Pelangkiran in the kitchen. However, the Pelangkiran's function is not for ritual/prayer. Balinese would put the offerings at the Pelangkiran. The ritual of prayer is done in the Padma, in the houseyard. The Pelangkiran, as a sacred space, is made by the owner so that the owner can place their offerings there. The owner purifies the place of the Pelangkiran and builds its sacredness by keeping it clean from pollution and from unholiness. To understand the diversity in Balinese Hindu, we should understand the concept of Desa Kala Patra: context of place, time, and condition. What could be done in different contexts and situations? Balinese Hindus can build sacred places by themselves, based on their local situation and contexts, to fulfill their personal spiritual needs. The *Yadnya*, the rituals and ceremonies, should follow a person's condition and financial ability.

In Pak KS's case, his main consideration when he was designing his house was about the sacred place (Figure 27). Little or less consideration was given to other rooms because of the spatial limitation. He experienced confusion during the design process and the decision to build the house temple on the third floor, the highest floor of the house, was made in the middle of the construction process. The decision was made based on the extra building materials that he had after the second floor was built. He feels that the materials were a gift from God because he has detailed calculations

of the materials that he bought. The decision was made by himself after a short discussion with the building construction workers. Pak Ketut's decision to not strictly follow the traditional principles is based on the fact that his family already owned a traditional house in his origin village. Even if he had bigger land and financial power, he mentioned that he would not choose to construct a house based on the traditional principles in the city. He felt that the village house had already applied the traditional principles, fully guided by an Undagi, so he did not need to construct a similar one in the city.

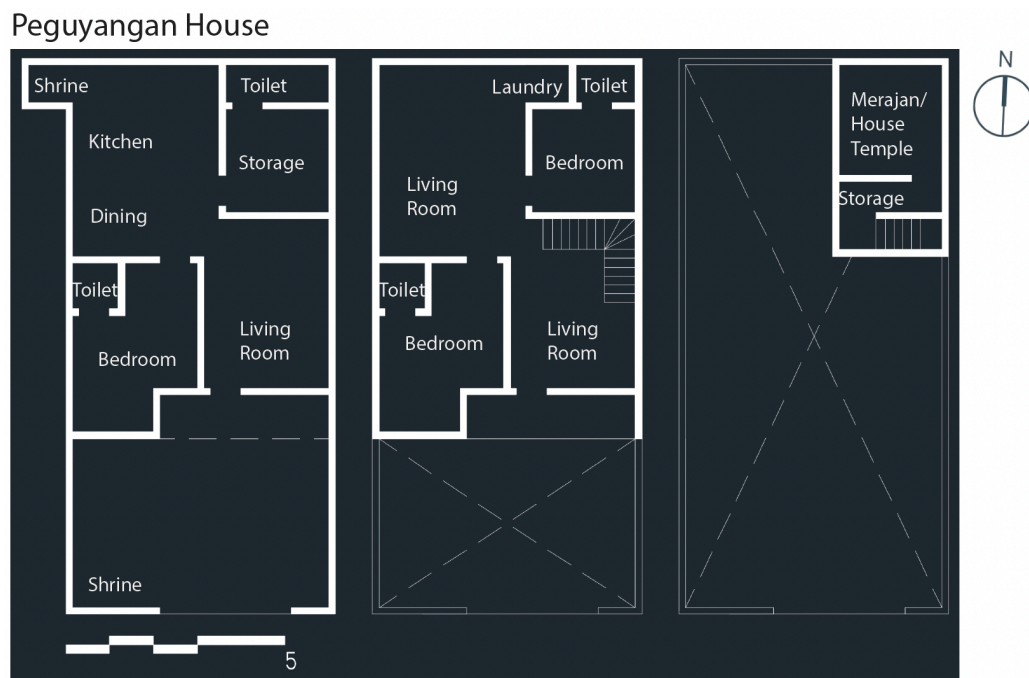


Figure 27. Pak KS's urban house plan. The scale is in meters. Drawing developed by the author.

“Enough” may be the conclusion, but at the same time, it implies that there are wide degrees of individual feeling of sufficiency. What is the nature of the sufficient amount of Balinese Hindu's architectural expression?

5.5.3. Repositories of Tradition

It seems that the repository of tradition is not only located in the practical role of Undagi and the Priest, but also located in the daily ceremonies and rituals. Although not easily identifiable, the Balinese urban vernacular spaces are organized according to sequences of actions and routine religious performances.

In the literatures, the traditional patterns of the Balinese traditional houses are guided by the sacred and profane. The traditional spatial principles are influenced by two axes: the cosmic axis which refers to the mountain (*kaja*) and the axis which refers to the sunrise. The two directions act as the basic guidance for the Balinese spatial arrangements, influencing the ways the Balinese arrange the space within their house, the surrounding environments, and their villages. In the daily life of a Balinese Hindu, the axis also orients their sacred and profane activities, such as their worship, ceremonies, or sleep. For example, the location of the Merajan/ house temple is always located at *hulu, kaja/ kangin, or kaja/ kaub* (in the region of Tabanan).

The case study illustrates the non-traditional consideration that adds to the ways the house owner arranges the spatial configuration of their houses. While (1) *hulu/* upstream and *teben/* downstream and (2) sacred and profane have always been a part of the traditional principles of the Balinese spatial arrangements, some additional themes appear and become additional factors to be considered. These additional themes are (1) the front and the back of the house, (2) divisions of clean and dirty areas, (3) higher and lower parts of the house, (4) public and private areas of the house, and (5) economic values of space.

Some possible reasons for these considerations are the shifting values in the society, the shifting/less control and authority from Undagi/traditional architects, and changes in the social system and the

Balinese culture. In the past, an Undagi may have the authority and influence in controlling the spatial configurations. Currently, this authority has been shifted and divided among many stakeholders, including the owner of the house, the builders, formal/registered modern architects, contractors, government, and other external voices that may influence the decision in the design of the houses, the surrounding environment, and the urban spaces.

The shifting authority may influence the decision-making process and create variations in spatial arrangements. Ambiguous spatial practices of traditional religious values in dense urban vernacular environments also exist because of the way these principles are translated, in time and space (from the past to the future, and from the rural agricultural to dense urban kampungs). These translations could be observed by looking at the way the rituals and ceremonies are practiced in the rural environment where the religious values are practiced and facilitated by the availability of space and resources. Rituals can be (1) performed and facilitated by space, (2) performed but not facilitated by a space, hence a borrowed flexible space, or (3) no longer performed. Space can (1) facilitate the rituals and ceremonies, or (2) provide ambiguity to facilitate rituals and ceremonies.

From the perspective of a house owner, a memory-based knowledge of the routine ceremonies and rituals justified their decision to limit the involvement of the Priest and the Master Carpenter in the planning and construction process of their houses.

Hence, the communication that occurs during the planning and construction is not limited to a simplistic triangle of Priest–Undagi–House Owner. In the dynamic decision-making process of the construction of a Balinese vernacular house, the house owner decides his own degree of freedom in interpreting the memory-based information and other sources of information: social media, mainstream information channels, and close relatives. Contribution from family and community

members also plays a significant part in providing solutions to the house owners' limitations.

Inconsistencies are not as important as being consistent with one version. One needs to follow the rules written in one version under the guidance of their priests.

As people move from many rural villages to a city, they carry their rural principles and practice them individually, creating varieties and differences in house layout and spatial solutions. This practice illustrates the way the actors implement their knowledge in the construction of an ordinary Balinese urban vernacular. It is not a direct implementation of the theoretical principles of Balinese Hindu spatial organization.

In Chapter 6, I describe how ordinary people with financial and spatial limitations navigate their environments through spatial imperfections and dynamic negotiations. These strategies are not just adaptations but essential solutions to challenging contexts. For many, the concept of a 'perfect' living space is unattainable due to economic and physical constraints. Instead, residents often embrace spatial imperfections as adaptive solutions. For example, in densely populated urban areas where space is a premium, houses might be built with irregular shapes to fit into the available patches of land, or multi-functional rooms might be created to maximize the utility of limited space. These imperfections are not seen as deficiencies but rather as practical adjustments that allow individuals and families to make the best use of their living environments. This approach can be seen in the way some houses are constructed with available and affordable materials, while still keeping the efforts to facilitate religious rituals and express their traditional belief system.

Chapter 6

The Evidence of Patterns

This chapter discusses the evidence of patterns described in the previous chapter in different genealogical groups. In this study, both rural and urban case studies are referred to as ‘villages,’ encompassing both rural and urban village contexts. This terminology aligns with historical usage and directly corresponds to the Balinese term ‘desa,’ which universally denotes settlement areas irrespective of their rural or urban characteristics. Therefore, within the context of this study, the term ‘rural village’ may be utilized interchangeably with the term ‘origin village.’ This interchangeability facilitates a clear understanding of the conceptual framework and ensures consistency in referring to the settlement areas under investigation. The discussion is divided into three parts. The first and the second sections will explore the evidence of patterns within two genealogical groups. These discussions are categorized at two levels: (1) patterns that emerge at the village level, and (2) patterns that emerge at the houseyard level. Each discussion of the pattern will follow a similar structure: it will begin with a general explanation based on the interviews and observations, followed by a comparison of each pattern component as observed in the Origin Village with those found in the urban settings. Each component will feature a title of the pattern, an image illustrating the pattern component, and a description of the emerging pattern. In the third section, the two genealogical groups will be compared based on the following discussion topics: (1) daily offerings, (2) architectural attributes, (3) actors and agencies, and (4) syntactical measures.

6.1. Evidence of Patterns in Genealogical Group A

Within the genealogical group A, I interacted with a family from Pangsang village and Peguyangan village. The central figures are KS and MR. KS is the father of MR. KS lives in the origin village (Pangsang Village), and MR lives in the city (Peguyangan village in Denpasar City).

6.1.1. Patterns of the Village: Desa Adat Pangsan and Desa Adat Peguyangan

MR, living in an area predominated by migrants, explains his disconnection from the local Desa Adat, as a common social situation faced by individuals moving from rural to urban settings. The neighborhood once was a rice field and now has been subdivided, sold, and developed—a trend in urban expansion that reflects shifting land use patterns from agriculture to residential housing. He was uncertain about the local Desa Adat, suggesting that it might be a part of Desa Adat Peguyangan, yet confirms his knowledge about the local Banjar Adat, named Banjar Adat Tagtag. The fact that he knows the Banjar Adat but not the Desa Adat provided a clue regarding the interaction between migrants with communal and traditional governance structure in urban areas.

Additionally, MR mentions about the existence of Bale Banjar Suka Duka named Banjar Hita Buana, dedicated to migrants and consisting mostly of newcomers, underscores the creation of new social structures to accommodate the increasing diversity brought about by urban migration. Unlike traditional Banjar Adat, which is deeply rooted in specific local traditions and responsibilities, this Bale Banjar acts as a communal space for migrants who may not have strong ties to the local cultural heritage. It also hosts its own small temple, indicating a sense of community and spiritual need among its members. MR's limited involvement with the local Bale Banjar, restricted to participation in local events or paying fines when unable to attend, provides a theme of flexible participation in community life among urban migrants. Balinese Hindu migrants often balance new urban identities with traditional responsibilities, and as MR notes, shifting one's spiritual responsibilities to the local Desa Adat is a possibility, though rare, and usually contingent upon having family members who can continue obligations in the origin village.



Pangsan Village (place of origin)



Figure 28. Location of Desa Adat Pangsan in Bali Island and the structure of the village. The red dot indicates the location of the origin house.

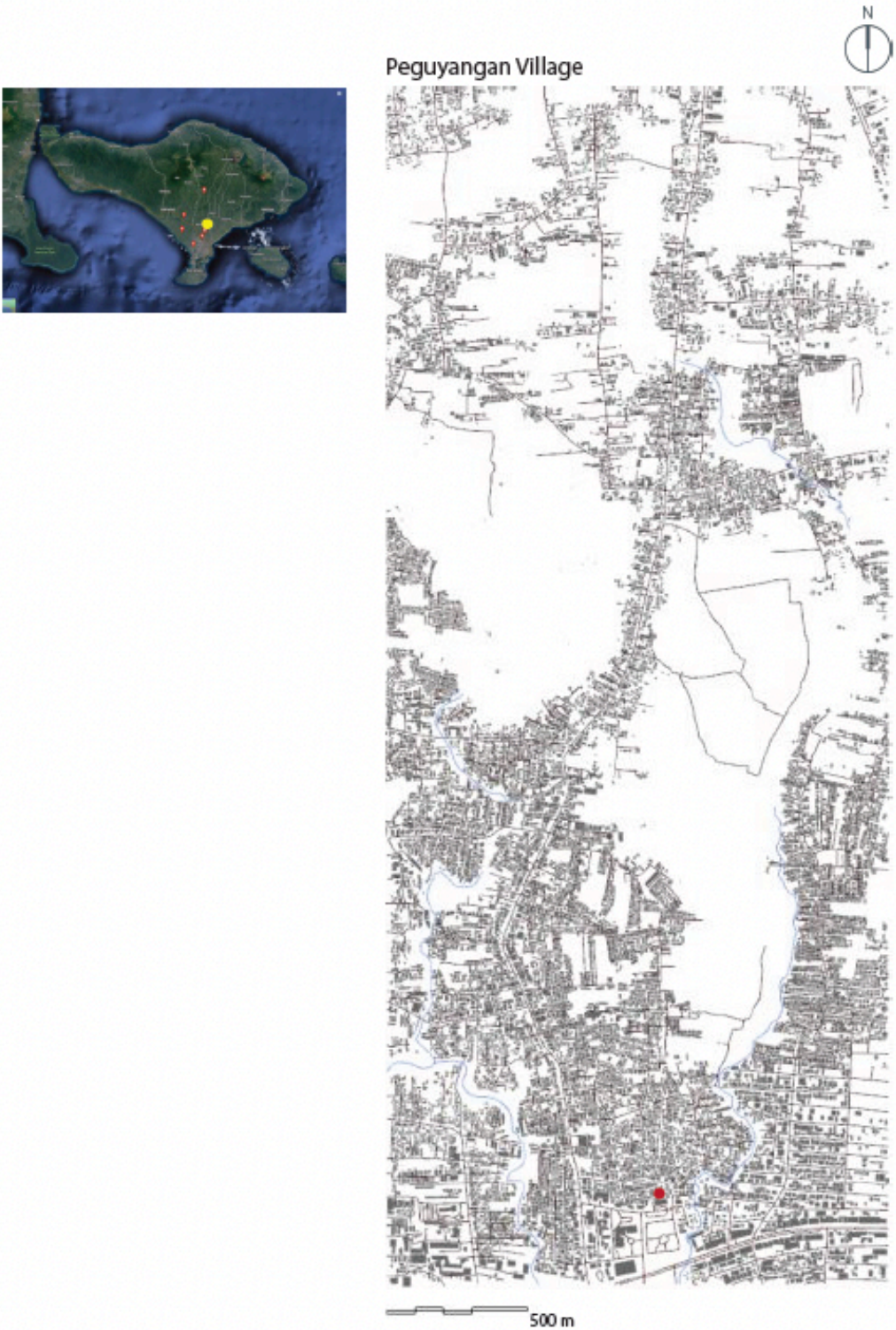


Figure 29. Location of Desa Peguyangan in Denpasar, Bali Island, and the structure of the urban village. Red dot indicates the location of the urban house.

6.1.1.1. The Kayangan Tiga Temples

Desa Pangsans features fully established Kahyangan Tiga temples. The Pura Desa and Pura Puseh are situated adjacent to each other at the village center. In contrast, the Pura Dalem is positioned separately towards the southern part of the village (Figure 30). This arrangement takes into account the village's topography, where the northern part is elevated compared to the lower southern part of the village.

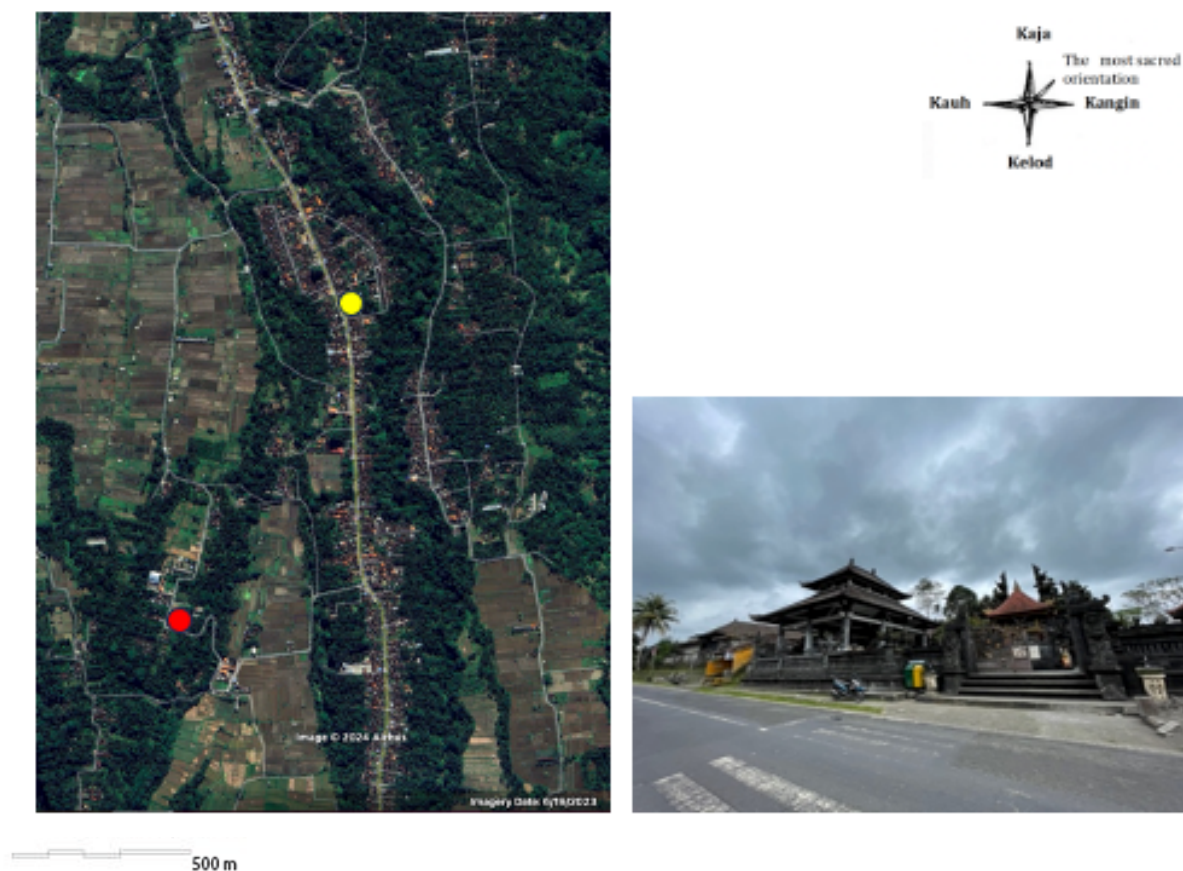


Figure 30. Desa Pangsans: Location of the Kayangan Tiga Temples. The yellow dot indicates the location of Pura Puseh and Pura Desa, while the red dot indicates the location of the Pura Dalem. The Pura Puseh and Pura Desa is located at the same location, at the center of the village, while the Pura Dalem is located at the southern part of the village. The Image illustrates the Pura Desa and Pura Puseh (2022), taken by the author.

Desa Peguyangan has the Kahyangan Tiga temples, which are integral to the village's structure. The Pura Desa and Pura Puseh are situated at the northern end of the village, aligning with traditional placement. Given the village's large number of Banjar Adat and population, multiple Pura Dalem and cemeteries are scattered throughout to adequately accommodate the community's need for burial, rituals, and celebrations (Figure 31). The locations of the temples in Desa Peguyangan also reflect the village's topography, where the northern part is higher than the southern part.



Figure 31. Desa Peguyangan: Location of the Kayangan Tiga Temples. The yellow dot indicates the location of Pura Puseh and Pura Desa, while the red dot indicates the location of the Pura Dalem.

The Pura Puseh and Pura Desa is located at the same location, at the north end of the village, while the Pura Dalem is located at the various part in the southern section of the village. The Image illustrates the Pura Desa and Pura Puseh (2022), taken by the author.

The Three Worlds		
	Origin Village	The City
Summary	<i>The Kayangan Tiga temples are built and positioned according to the treatises.</i>	<i>The Kayangan Tiga temples are built and positioned according to the treatises.</i>
<i>Image(s)</i>	 	
Description	<p><i>Desa Adat Pangsan features a fully established Kahyangan Tiga temples. Both the Pura Desa and Pura Puseh are situated adjacent to each other at the village center.</i></p> <p><i>In contrast, the Pura Dalem is positioned separately towards the southern part of the village. This arrangement takes into account the village's topography, where the northern part is elevated compared to the lower southern part of the village.</i></p>	<p><i>Desa Peguyangan has the Kahyangan Tiga temples, integral to the spiritual structure of the village. The Pura Desa and Pura Puseh are situated at the northern end of the village, aligning with traditional placement. Given the village's large number of Banjar Adat and population, there are multiple Pura Dalem and cemeteries scattered throughout to adequately accommodate the community's need for burial, rituals and celebrations.</i></p> <p><i>The locations of the tempes in Desa Peguyangan also reflects the village's</i></p>

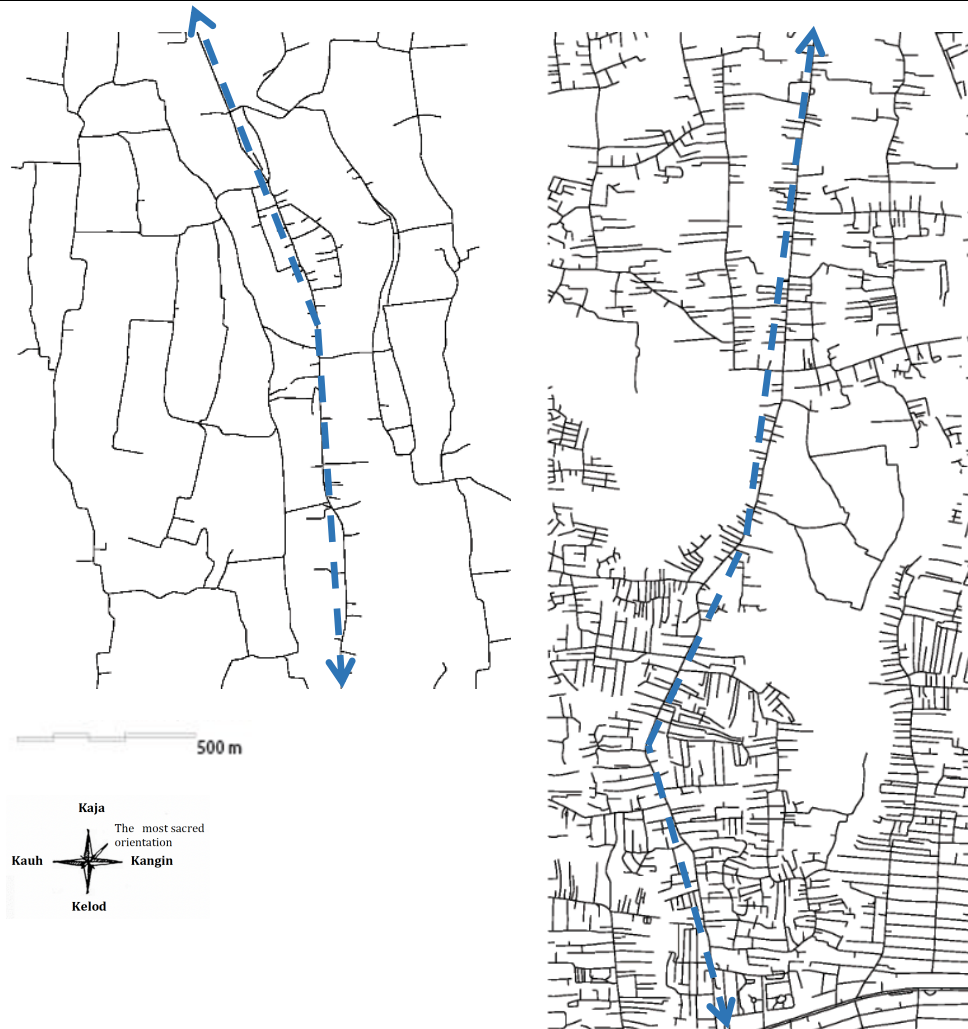
topography, where the northern part is situated at a higher elevation than the southern part.

Table 5. Kahyangan Tiga Temples of Desa Pangsang and Peguyangan

6.1.1.2. Upstream-Downstream Axis

Upstream-Downstream Axis		
	Origin Village	The City
Summary	<i>The main street follows the sacred hulu-teben/Upstream-downstream axis.</i>	<i>The main street follows the sacred hulu-teben/ upstream-downstream axis. Smaller, irregular shaped city blocks created as the population and building density grows.</i>

Image(s)





(a)

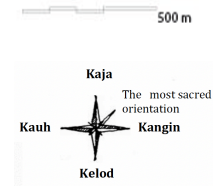


(b)

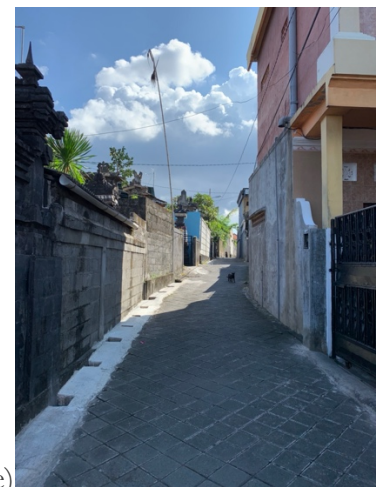


(c)

Image (a) illustrates the main road, while images (b) and (c) illustrates the smaller path behind the first layer of buildings in Pangsans village, 2022.



(d)



(e)

Images (d) and (e) illustrates the alleys behind the first layer of buildings in Peguyangan, 2022.

<i>Description</i>	<p><i>The layout of the village is primarily structured along a north-south axis, featuring a major street that serves as the backbone of the community, with smaller streets and alleys extending to the west and east directions. This configuration positions the major functions and essential buildings along the main street, emphasizing a linear</i></p>	<p><i>Desa Peguyangan similarly exhibits a primary north-south axis that historically organized the village's major functions and buildings. However, the visibility of this structural axis has diminished over time due to the increased population growth and building density, which have obscured the once-clear main thoroughfare. The growth of</i></p>
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<p><i>development pattern that characterized the village's initial setup.</i></p> <p><i>Behind the first layer of buildings, agricultural fields stretch out, serving as the primary workplace for the majority of the village's population. As the population has grown, newer buildings have been constructed behind the original original structures, expanding the village from the main street into the nearest surrounding agricultural land.</i></p> <p><i>Due to the topography, the north-south axis of the village not only organizes the internal layout but also plays a crucial role in connecting the village to surrounding villages and cities. This major thoroughfare facilitates significant movement and transportation and integration with the broader network.</i></p>	<p><i>east-west streets and alleys has introduced a more dominant and irregular pattern to the city blocks.</i></p> <p><i>The intersection of the major north-south and east-west streets forms larger blocks, while smaller alleys provide essential access to smaller and more irregularly shaped blocks situated behind the first layer of buildings along the major streets.</i></p> <p><i>The village's structural axis is less apparent but still fundamentally influences the underlying spatial organization.</i></p>
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Table 6. Upstream-Downstream Axis of Desa Pangsan and Peguyangan

6.1.1.3. Frequent Intervals of Sacred Nodes

Frequent Intervals of Sacred Nodes		
	Origin Village	The City
Summary	<i>Shrines are built at places/ natural elements that are believed to have spiritual powers. The common locations are waterways, tree, rivers or creeks, roundabouts and intersections.</i>	<i>Shrines are built at places/ natural elements that are believed to have spiritual powers. The common locations are waterways, tree, rivers or creeks, roundabouts and intersections.</i>

Image(s)



Description

In the village, major intersections and roundabouts are deeply imbued with spiritual significance, viewed as manifestations of the center of the universe and the intersection of cosmological axes. At these strategic points, residents place offerings, either directly on the ground or on small shrines. By making offerings, villagers seek to appease the spiritual beings to maintain spiritual harmony of the place.

The expression of respect and reverence extends beyond man-made intersections to include natural elements that considered important to the community. Significant

In Peguyangan, the spiritual practices observed in rural settings find their parallels. Offerings will be provided at intersections—both major crossroads of main streets and smaller junctions of streets and alleys. The impetus to make offerings at these specific sites is guided by “spiritual callings” which are not quantifiable and vary greatly among residents. Each intersection may hold different degree of spiritual importance to individuals.

Large trees and rivers receive similar spiritual treatments, visibly marked by the accumulation of offerings. Less visible, yet

natural sites such as large trees, riversides, and various points within the rice fields are similarly honored with offerings.

Given the significant number of villagers engaged in agriculture, there is a specialized temple, known as Pura Subak, strategically located in the midst of the rice fields. This temple is dedicated to the agricultural profession and serves to accommodate the farmers with their God.

equally significant, are the confluences where two or more water currents meet—these too are considered potent sites for spiritual engagement, and spatially expressed with signs of the sacred activities.

Table 7. Frequent Intervals of sacred nodes of Desa Pangsang and Peguyangan

6.1.1.4. The Townhall: Central Social Space

The Townhall: Central Social Space		
	Origin Village	The City
Summary	<i>Bale Banjar is built and facilitate the community social activities.</i>	<i>Bale Banjar is built and facilitate the community social activities.</i>

Image(s)



<p><i>Description</i></p> <p><i>Desa Pangsan has one community hall, known as Bale Banjar, that facilitates the following activities:</i></p> <ol style="list-style-type: none"> <i>1. It serves as a center for community discussions and meetings that require a large multipurpose space. This Bale Banjar 's multipurpose space often referred to as Bale Paruman.</i> <i>2. Acts as a hub for disseminating information to community members.</i> <i>3. Functions as a center for organizing religious activities among the residents.</i> <i>4. Used to coordinate community labor activities.</i> <i>5. Accommodates communal activities, including those that are part of local government programs or community-initiated groups, such as traditional dance and art class and youth clubs.</i> <p><i>All residents of the village are members of local Banjar Adat and are bound to the rights and responsibilities of Banjar and traditional village members as regulated by local traditional rules.</i></p>	<p><i>Desa Peguyangan consists of 22 Banjar Adat, and each of them has its own Bale Banjar. The nearest Bale Banjar from MR's house is the Bale Banjar Hita Buana, a Bale Banjar Suka Duka, which is dedicated to migrants and primarily composed of newcomers.</i></p> <p><i>The Bale Banjar, architecturally consists of a Bale Paruman, Bale Kulkul, Natah, and a Pura Melanting. Functionally, it serves similar function to Bale Banjar in Pangsan village.</i></p> <p><i>Although serves a crucial community hub, MR's family traditional attachment is to the Banjar Adat in their origin village. Hence, the involvement within the Bale Banjar in urban areas is not a priority. Regularly, MR and his family travel back to the origin village to attend religious rituals and ceremonies in the origin village.</i></p>
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Table 8. The Townhall: Central Social Space of Desa Pangsan and Peguyangan

6.1.2. Patterns of the Houseyard: Pangsan and Lumintang

MR purchased land in Lumintang in 1995 and began constructing his house in 1997. The construction process, which extended over a decade, illustrates a common practice in self-built/urban vernacular houses in Bali, where homeowners engage in gradual construction due to financial, material, or labor constraints. He pointed out that when they started living in the house, it was still incomplete, with “raw walls” indicating that the construction was in a rudimentary stage.



Figure 32. The origin house (left) and the urban house (right). The origin house is a one-story house, with pavilions built around a natah—illustrates the application of traditional spatial principles; while the urban house is a three-story house, built on a much smaller site.

Describing the house’s condition when they moved in, MR noted that initially, only the concrete structure was completed, and the construction of most of the walls began thereafter. This decision reflects a pragmatic approach, where the functional necessities of shelter take precedence over the completion of aesthetic or non-essential elements. He further detailed the

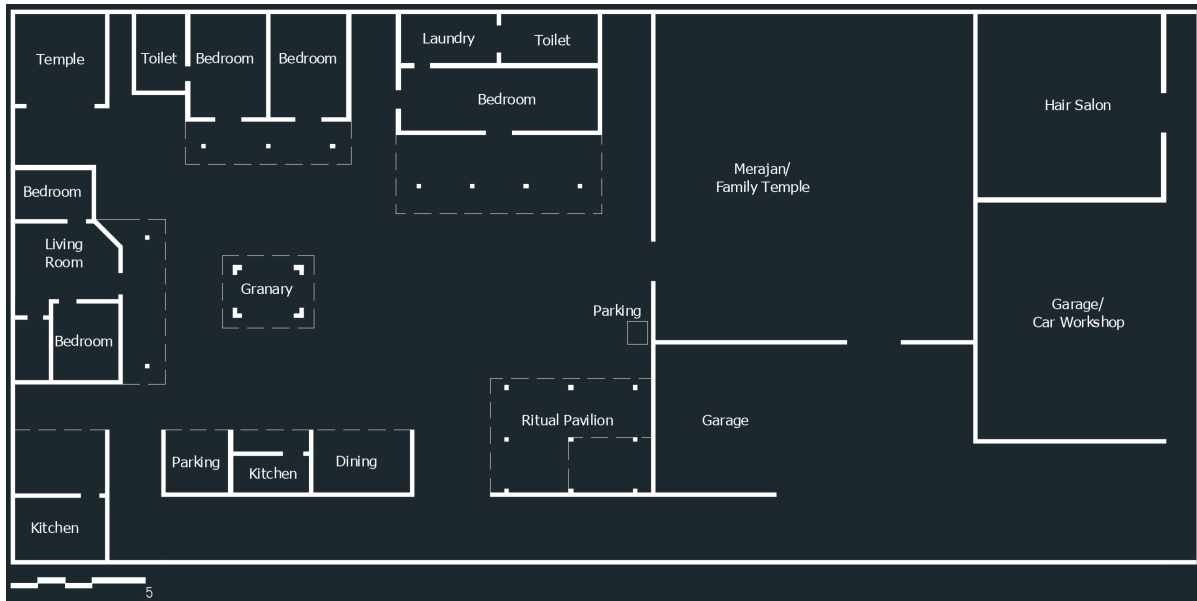
construction phases, explaining that the exterior walls were prioritized, followed by the interior walls. This progression ensured the family had a secure and private living space, which was incrementally improved and completed over time.

6.1.2.1. The Orientation System of the Houseyard

The interview session with KS revealed that he is a knowledgeable local, with a deep understanding of the traditional principles that guide the spatial organization of both domestic and religious spaces in Bali. KS is familiar with Tri Hita Karana, Asta Kosala Kosali, and Nawasanga, and seems to be familiar with how these principles guide the Balinese daily life and shape the physical structures of the Balinese environments. However, KS also noted that these principles are generally well understood by traditional architects and traditional building workers who are integral in bringing these principles to life. When asked about Nawasanga, a concept describing the spiritual and locational orientation of Gods within the Balinese cosmos, KS expressed a thorough familiarity. He described how Nawasanga involves the placement of nine Gods across the cardinal and ordinal directions, with each God occupying a specific spatial domain.

Further delving into the concept of Tri Mandala, which divides space into three hierarchical zones, KS detailed how this principle organizes both domestic and temple environments. Each zone has a designated spiritual significance, with the Utama as the most sacred area dedicated to divine worship (the most sacred area: family shrines), the Madya as a communal or gathering space (semi profane area: habitable units), and the Nista as the more secular or utility purposes (the most profane: animal stalls, garden). Further, KS also highlighted his proactive role in expanding his village temple structures to fully incorporate the Tri Mandala principle.

Pangsas House



Peguyangan House



Figure 33. The Tri Mandala: The three zones of the house.

Discussing the practical implications of these spiritual concepts in the urban house, MR clarified that while Nawasanga informs broad religious and community practices, it does not directly impact the configuration of spaces in his urban house. However, it plays a significant role in religious settings and ceremonies. Despite his answer, the house temple in his urban house reflects the cardinal directions' application. He positioned the house temple in the *Utama*, or the house's most important area. This decision illustrates that MR adheres to traditional religious

principles and ensures that the most sacred area of the home is situated in a place that is believed to be the most conducive to spiritual well-being.

Orientation System of the House Yard		
	Origin house	Urban House
Summary	<i>In the house yard, the sacred zone exclusively hosts the house temple, while the profane region accommodates practical spaces like the kitchen or livestock pens. The intermediary space, nestled between these two extremes, serves as the backdrop for the family's daily activities, housing the living area and sleeping pavilions.</i>	<i>The cosmological hierarchy is particularly applied in the placement of the house temple. Functions that facilitate family's daily activities do not strictly following the cosmological guidance. However, the placement of bed, and sacred components (shrines) still follow the treatises.</i>

Natah - Pawongan



Description	<i>Centrally located within the layout of the origin house is the natah (courtyard), around which pavilions are distributed according to the eight cardinal directions. The highest hierarchical zone (utama ning utama) is reserved for sacred function, specifically the house temple.</i>	<i>The size of the property prevents the homeowner from applying traditional Balinese architectural principles to their home in the urban kampung. The natah, typically the initial orientation space as one enters a Balinese home, is represented by the living room in this context. When I enter the property, the "boundary" of my perception that I am now "inside" the house</i>
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The site could be divided into nine-part grid, where each section is allocated for specific function with a defined hierarchy (see section 6.1.2.3. Distribution of Functions).

Regarding how the natah is experienced by its users, it is the first space one enters after completing the initial phase of “entering the house.” In traditional Balinese homes, “entering” seems to be a part of a ceremonial process. One does not truly feel “inside” the house until reaching the central space. This central space, the “natah,” allows occupants to orient themselves in various directions and choose from multiple options. It serves as a transitional area after “entering,” where visitors then decide which pavilion to approach next.

occurs as I pass through the main door. From this living room, one can decide whether to proceed further into the other rooms or into spaces that are spatially deeper.

From (1) Locational perspective and (2) in terms of how this living room is utilized, it shares similarities with the natah in the origin house. However, the spiritual activities that occur in the living room do not reflect those that take place in the Natah. If the Natah is described as a space filled with the symbolism of spiritual energy, the living room in this urban home does not serve the same function. The guardian spirit, Penunggun Karang, is situated at the front of the house in the southwest corner. Additionally, the living room is not treated as a “lehub” or a sacred receiving area. There is no canang (offerings) placed on the floor, and there is no pelinggih (shrines) or pelangkiran within the living room.

**Teba -
Palemahan**



Not available

<i>Description</i>	<i>The Teba behind the house has two access points at the northwest and southwest corner of the house compound. This land serves at least four main purposes for KS family. Firstly, it functions as productive land where fruit and vegetables are grown. Currently, KS plants banana, coconut, durian, jackfruit, and some vegetables. Secondly, it serves as space for raising livestock. KS has three cows and some goats. It is common for a Balinese to also have pigs in this area. Thirdly, the teba is used for the family as a disposal area, particularly for organic waste. Fourthly, it acts as a place of worship. A small river runs behind the house, so that the family builds a pelinggih at the teba.</i>	<i>The limited availability of land has prevented the owner from allocating space behind this house for teba. However, the absence of teba also reflects the owner's minimal need for space to engage in farming or livestock rearing. The household's needs for consumable goods are no longer dependent on having a teba. This situation highlights a shift in lifestyle and resource utilization, where reliance on personal land for food production has diminished, possibly due to access to other sources of goods and changes in living conditions. This transition away from traditional land use reflects broader socio-economic changes impacting individual choices and capabilities.</i>
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Table 9. Orientation System of the houseyard in Desa Pangsang and Peguyangan.

6.1.2.2. Celebrated Entrances

Celebrated Entrances		
	Origin house	Urban House
Summary	<i>The gate of the residential compound and house temple are decorated. The entrance is a system of space and structures: Lebug, Angkul-angkul, Apit lawang, and hierarchy of floor levels.</i>	<i>Decorated gate is no longer built. Despite the missing physical components, the daily offerings for the deities are still provided.</i>

Lebuh



Description

The concept of lebug as an open, welcoming space is manifested in several areas within the origin house. Following the traditional guidelines, there are various types of lebug that are treated as respected transitional spaces in this house: (1) the space in front of the angkul-angkul gate, (2) the center space of Natah, (3) the space in front of the house temple's gates, and (4) the open space in the middle of the house temple.

These spaces are marked with offerings on the ground, so that they felt as critical transitional zones, and/or act as signifier that the spaces are sacred. For the homeowner, the offerings act as a way to communicate with the Bhutakala, beings from the underworld. The owner believes that Bhutakala would want to help them maintaining the harmony and balance of energy in the house.

In the urban house, the lebug as a transitional space is clearly marked by the presence of offerings placed on the floor in the area leading to the front courtyard. Although angkul-angkul gate does not appear in its traditional form, the house's fence is considered to fulfill the same role as an entrance gate to the property.

Upon entering the front gate of the house, the front yard is marked with offerings at the center, suggesting that this area is treated similarly to the Natah or the central courtyard in the traditional house. This arrangement can be understood when considering the component of the pelinggih penunggun karang, which resides on the edge of the Natah in traditional house is now located in the front corner of the front yard.

A direct translation of the house temple gate is not available, as its location on the

third floor does not allow for a transitional space that can be interpreted as a transitional lebu. However, the central part of the house temple's space is still treated as the lebu of the house temple's Natah, similar to the practice in the origin house, marked by the same offerings. The function of these offerings at these locations remains consistent with the understanding in traditional houses, serving as medium for communication and negotiation with the Bhutakala.

Candi Bentar and Apit Lawang



Description

The Candi Bentar gates, are split gates resembling the silhouette of Balinese temple, cut down in the middle. Mostly found at the entrances to religious sites, these gates require a few steps to pass through. The Candi Bentar that is built in this origin house is ornately decorated, enhancing the visual impact as the temple's entrance. The homeowner also mentioned that the structures in front of the house compound serve similar function, but with less ornament.

The Peguyangan house does not feature the traditional Balinese gate structures such as Candi Bentar, Angkul-angkul, or Apit Lawang. Instead, the iron fence at the front yard serves as the boundary marker between the home's property and the external environment.

Although the tradition of placing offerings on both sides of the gate is not practiced in this house, offerings are made daily on the lebu (the space) in front of the gate and within the courtyard itself.

The homeowner also called the structures of the front gates as apit lawang; two pelinggih (shrines) that are located on the sides of a road or entry pathway. Each structure is shaped like a tower with a roofed space at the top, serving as a place for worship and for placing offerings dedicated to the divine manifestations that protect the home.

Further, the homeowner mentioned that the Apit Lawang on the right side is designated as a seat for Sanghyang Maha Kala, and the one on the left serves as a seat for Sanghyang Adi Kala. Commonly, these structures are not meant for defense as they are originally designed without doors. However, KS adds metal fence at both gates for security reasons. These structures not only fulfill a protective function but also symbolize the spiritual guardianship over the threshold they adorn.

Floor Levels





Description

The level of the floor may indicate the hierarchy of the function. Within this origin house, all pavilions are constructed with raised floors. Among the pavilions, the highest is the Bale Meten or Bale Gedong, followed by Bale Dangin and Bale Daub. Function associated with the lowest level of sanctity, or nista, have floors that are lower compared to the other Bales.

Similar principle also applied to the Natab; the natab of the house temple is higher than the natab of the house.

This elevation serves to symbolize the varying degrees of sanctity and importance within the spatial layout of the home.

In Peguyangan house, differences in floor levels are not immediately apparent, mainly because the house spaces are not arranged in to separate pavilions.

However, the variation in floor heights actually follows traditional principles, where the Utama (the most sacred space: the house temple) is situated on the highest level, the third floor. The group of Madya (semi profane area: habitable spaces) are grouped together on the first and the second floors. The Nista functions (the most profane area: the cooking area/ kitchen) are positioned lower than the first floor.

Table 10. Celebrated Entrances in Desa Pangsang and Peguyangan.

6.1.2.3. Distribution of Functions: The Pavilions as the Frame of the Courtyard

Traditionally, it is preferable not to have bedrooms directly above the kitchen due to the heat—which is believed to carry negative qualities for the person’s rest—rising from the kitchen. In MR’s house, it is coincidental that no bedrooms were located above the kitchen; this was not a result of a deliberate adherence to religious traditional principles but rather a serendipity in the design process.

MR discussed the traditional location of the kitchen in Balinese homes, which is typically positioned near the house’s entrance. He agrees that the placement is grounded in the belief that the fire element of the kitchen can neutralize negative energies brought into the house from the outside. However, adhering to this principle in his urban residence was not feasible for MR and his wife due to concerns about privacy and the desire to keep the kitchen away from public visibility. Consequently, he positioned the kitchen at the back of his house. Despite the location not being ideal, he personally felt that the placement of the kitchen in his origin house offered a sense of privacy, as it was concealed from the view of the main street. Visitors to the original house had to navigate a narrow path, with the kitchen tucked away behind the entrance wall. MR wants to preserve this sense of seclusion in his new home because he feels uncomfortable with the idea of having a kitchen that is visible from the street.

This deviation from traditional principles raises questions about how contemporary Balinese Hindus manage spiritual and energy-cleansing practices when traditional architectural configurations are altered; in this case, it is the kitchen. Addressing this, MR mentioned that while the kitchen’s location might stray from the traditional principles, Balinese religious teachings provide a degree of flexibility. It is acceptable not to adhere strictly to traditional rules, especially when faced with limited conditions.

Although the house is considered small, MR could still host gatherings at his house. While extensive family gatherings are less frequent in his urban house compared to a traditional village setting, the second floor of his house regularly hosts gatherings with neighbors, accommodating ten to twenty people. Furthermore, contrary to the notion that urban constraints hinder religious practices, MR clarified that limited spaces do not prevent the conduct of religious activities. In the origin house, specific areas are dedicated to preparing religious offerings and decorations. In his urban dwelling, such activities are integrated into commonly used spaces like the living room, which is temporarily converted into a Bale Adat (a traditional communal pavilion) as needed.

MR also took responsibility for planning the layout of the furniture. When discussing the orientation of beds, he noted the departure from traditional guidelines, which recommend the head of bed facing north. In his case, practical issues such as the proximity to the bathroom necessitated placing the head of the bed towards the south. He justified the arrangement by noting the presence of Pelinggih Penunggun Karang to the south, which he felt spiritually appropriate and comforting.

The Pavillions as the Frame of the Courtyard		
	Origin house	Urban House
Summary	<i>The placement of each pavilion follows the treatises; the pavilions are built around the central courtyard based on traditional principles.</i>	<i>Central living room seems to replace the function of the central courtyard. Functions are built around central living room. The placement of functions not necessarily considers the hierarchy of functions.</i>

Bale Daja



Description

At the origin house, the Bale Daja or Bale Meten is located in the Kaja (north) of the site, following traditional guidelines that situate the Bale Daja towards the mountain. Its location is right next to the house temple. The Bale Daja building serves as the sleeping quarters for the eldest homeowner and is also used by the owner to store valuable items. Due to this function, the owner often refers to this Bale as Bale Gedong. The owner invokes the Deity Sanghyang Wismakarma, known as the architect as the Gods, as the deity presiding over this pavilion.

In the Pegnyangan house, certain elements typically found in the Bale Daja of the origin house are not directly translated into the urban home setting. The adaptation to a compact plot has led the owner to make several alterations:

Location of the main bedroom. Unlike the origin house where the main sleeping area is in the Kaja (north) section, in the urban house, the main bedroom is situated at the front of the house. This placement allows for visual access to the entrance gate, which mirrors the visibility aspect of the Bale Daja in the origin house, where it is the first pavilion seen upon entering the Natah,

The Bale Daja is the most decorated building in the house compound, adorned with floral motifs, particularly on the façade walls. This building is positioned directly in front of the entrance to the Natah, making the facade of the Bale Daja the first pavilion façade seen by someone entering the site. It has the highest floor level compared to other pavilions, and even higher than the Bale Dangin, where ceremonies are often held. The Bale Daja has a wide terrace which functions as the guest reception area. During my visit and several nights spent at the origin house, our discussions often took place on this pavillions's terrace, as well as on the terrace of the Bale Daub. In daily life, the homeowner also spends much of his leisure time resting on the terrace of Bale Daja.

The façade of the building is symmetrically arranged, featuring a main door in the center flanked by two small windows on either side. However, the owner more frequently uses a smaller door on the west side of the building for daily access to Bale Daja. Inside, the room feels solid and closed with minimal access to natural lighting. It seems the bedroom in traditional Balinese homes are places where privacy is elevated to the maximum level and serve as the safest fortress within the entire house compound.

thus establishing visual access from and to the entrance of the Natah.

Absence of decorations. Unlike the rich decorations on the Bale Daja, the urban house omits such embellishments. In a setting constrained by space and resources, decorations are considered non-essential and therefore excluded, highlighting a practical approach in urban architectural adaptations.

Openness and natural light. The enclosed, fortress-like impressions of the Bale Daja is absent in the bedrooms of the urban house. Here, wider and transparent openings allow substantial natural light into the rooms, contrasting with the secluded feel of the bedrooms in the traditional settings.

Irrelevance of separate pavilions terraces. The distinct pavilion structure, including terraces like those of Bale Daja, becomes irrelevant in the urban house configuration. The functions of the Bale Daja terrace are replaced by the living room, where the guests are received and the homeowner spends leisure time during the day.

Bale Daub





Description

In the origin house, the Bale Daub is situated west of the Bale Daja and functions as a sleeping area for the children and guests visiting the house. Due to its purpose, the owner also refers to this building as Loji (which I believe has similar meaning to 'lodge'). He further explains that the deity presiding over this pavilion is Bhatara Mahadewa. The Bale Daub features a terrace at the front of the building, serving as a space for socializing and relaxation during leisure time. This building contains two rooms to accommodate the owner's children and provide flexibility when guests stay over. During my stay at the origin house, I resided in one of these bedrooms in the Bale Daub, as the owner's children no longer live there.

The façade of the Bale Daub reflects its function, with two adjacent room doors. There are no windows on this façade (or in this building as a whole), only air vents at the back to facilitate natural air movement. The front wall of one of the rooms is angled towards the center of the Natah, although the owner indicates that this design is not based on traditional. Architectural guidelines. He intentionally tilted the wall as a creative decision. The wall is not heavily decorated like the Bale Daja.

In the urban house in Peguyangan, the function of Bale Daub from the origin house is translated into family bedrooms. The owner has constructed two bedrooms for his children and guests on the second floor of the house. These rooms are positioned in different directions: one faces west (kaub) and the other northeast (kaja kangin). For the owner, although the orientation of these rooms aligns with traditional architectural guidelines, the decision to place them on the second floor was primarily pragmatic, aimed at ensuring natural light access for all rooms, including the communal area on the same floor.

The presence of windows and natural air vents in these rooms creates a stark contrast to the rooms in the Bale Daub of the origin house. The closed-off feeling with maximum privacy and the analogy of a fortress-like enclosure are no longer applicable to the bedrooms in the urban house. Health considerations are a primary reason for the owner to 'open-up' more wall areas in these rooms, allowing for better ventilation and light. Unlike the origin house, where room doors might feature decorations, no such decorations are found in the bedrooms of the urban house.

However, The wooden doors are carved with floral details, stressing the importance of access and boundary for Balinese. Adjacent to the Bale Daub is a bathroom that can be used by the children and guests.

The impression of the space I gathered from the interior of the building, where the minimal openings for light and visual access create a very enclosed space, is that it maximizes privacy and sense of security. Similar sense of fortress addresses the needs for privacy and security within the family compound.

Additionally, the terrace that is a significant feature in the origin house does not translate directly into the urban architectural typology, but its functional equivalent is found in the decision to provide a communal space on the second floor. This adaptation reflects the owner's efforts to balance the traditional space functions with the needs of his family.

Bale Dangin





Description

This Bale Dangin in the origin house is equipped to facilitate the larger, more formal religious rituals and celebrations, underscoring its importance as a central gathering place for extended family and community observances.

The Bale Dangin serves multiple purposes depending on the occasion. Before rituals and celebrations, it is utilized for preparing offerings and decorations for the events. On ordinary days, the Bale Dangin transforms into a tranquil space where elders rest and take naps.

In MR's house, the living room serves a dual purpose similar to that of a traditional Bale Dangin. The space is utilized by the owner and his wife for preparing religious ceremonies, mirroring the ceremonial functions of the Bale Dangin. On regular days, the living room transforms into a restful area where they place a bed on the floor to take daytime naps, much like the elders would in traditional Bale Dangin.

While the living room in MR's house adopts some functions similar to Bale Dangin, it cannot fully replicate the traditional space's role in hosting major Balinese Hindu religious rituals. For significant communal and familial ceremonies, MR and his family travel to their origin house in the village.

Pawon





Description

The origin house features two kitchen buildings. The first kitchen is located in the delod (southern) part of the house, and the second is adjacent to the first, situated at the southwestern corner of the house's courtyard. Both kitchen structures are the result of renovations; previously constructed with wooden structures, they have since rebuilt with concrete structures and brick walls. The kitchen buildings are having rectangular plans, supported by six main structural columns, referred to by the owner as 'sakanem'—a Balinese term where 'saka' means pillar and 'enam' means six. The floors of these buildings are elevated above the level of Natah but remain lower than the elevations of the Bale Meten, Bale Daub, Bale Dangin, and Jineng, integrating them subtly into the hierarchical spatial layout typical of Balinese architecture.

According to the owner, the kitchen buildings were reconstructed to match the original dimensions and spatial layout. Traditionally, the kitchen is divided into two sections: a traditional stove for cooking and a bale (a raised platform for seating). The cooking area is oriented towards the south to align with the position of the God Brahma in the Dewata Nawa Sanga layout, where Brahma, representing the fire

The owner of Peguyangan house mentioned that he could not facilitate the traditional Balinese house layout, which typically places the kitchen in the southwestern or southern part of the site. In this urban house, the kitchen is located in the northwestern part. However, the placement of the kitchen in this home is primarily based on privacy concerns rather than directional orientation. The owner is uncomfortable with placing the kitchen in the southern or southwestern part because it would position the kitchen at the front of the house. He prefers the kitchen to be visually concealed, making the directional orientation irrelevant. For him, privacy considerations on his compact site force a choice between 'front' and 'back.'

This homeowner's perspective made me reconsider the position and orientation of the kitchen in the origin house. Indeed, the kitchen in the origin house is located in the southern and southwestern parts, right next to the entrance of the Natah. However, from the perspective of experienced and lived spaces, the kitchen at the origin house is visually hidden. One entering the home would not immediately see the kitchen due to its position and orientation. This makes the homeowner's decision seem valid. The traditional value he carries is what he experienced in the origin house, which he translated into his urban home. While the cardinal direction may feel abstract, privacy

element, is situated in the southern direction.

Currently, the kitchen structure is divided into two rooms: one enclosed space for cooking and an open area designated as a dining space, reflecting the traditional division of kitchen space. Nowadays, the dining area is seldom used because the raised platform intended for seating is damaged. Consequently, the household members prefer to eat on the raised floor of other bale buildings of the house.

The kitchen's location adjacent to the entrance to the Natab is significant in relation to Balinese rituals of purification before entering the home's courtyard. Upon arriving at home, one would typically use water from the kitchen to wash their head and hands. This tradition is believed to cleanse individuals of negative energy before entering the house, underscoring the kitchen's role not just in culinary preparation but also in spiritual cleanliness.

is directly perceptible to him, and he believes that a hidden kitchen position offers similar experience and feel to the kitchen in the origin house.

Traditionally in Bali, cooking position face south, towards the direction of the God Brahma, and the cooking position in this house comply to the guidance. However, the position of the kitchen at the back of the house complicates the homeowner's ability to perform traditional purification rituals when entering the house. The adaptation reflects a pragmatic approach to cultural and spatial constraints in urban settings.

Jineng





Description

The Jineng in the origin house is located on the western side of the site (kaub), positioned directly in front of the kitchen, indicating a close functional relationship between the two. The homeowner believes that placing the Jineng to the south or southwest can bring blessings of safety, health, and material wealth. The primary function of this building is to store rice and similar foodstuffs, especially in the roof space. At the center of the building, there is a raised platform used for processing or preparing food before it is stored in the attic or cooked in the kitchen. On important religious days, this raised floor is also utilized for preparing offerings or storing banten (large sized offerings) that have been prepared before the start of the religious ceremonies.

The Jineng holds a sacred value because it is associated with offerings to Dewi Sri, Sang Hyang Sri Manik Galih. Beneath the stage floor, the owner stores equipment related to food processing. A critical item stored here is the Lesung and Alu. The Lesung is a stone mortar (a hollowed-out stone) used to pound the rice with an Alu, a long wooden pestle used for pounding rice.

According to homeowner beliefs, the Lesung and Alu symbolically represent the relationship between male and female elements. The Lesung is also associated

In the urban house in Peguyangan, the function of the Jineng is translated into a food storage area. The layout does not adhere to traditional guidelines, which suggest the south or southwest to be the optimal location for a Jineng. Instead, the owner interprets the spatial relationship from the origin house and adapts into this urban setting. The emphasis is no longer on directional orientation according to compass points but on the functional relationship between the kitchen and the food storage area. These two functions are positioned adjacent to each other on the ground floor to facilitate easy movement of food items between them. The food storage room is still associated with the deity Dewi Sri, hence offerings for her is still provided regularly.

Unlike Jineng in the origin house, which includes a space for food preparation and for the preparation of offerings, these functions in the urban house have been relocated to the kitchen for food prep and to the living room, which also serves as a support space for preparing offerings and decorations for ceremonies.

In this urban house, traditional food processing tools such as the Lumpang and Alu are no longer stored because the type of food brought into the house is generally not in its raw, unprocessed form, but is ready to be stored and cooked. Nevertheless, the food

with the process of death of life elements of the components that will be used as food, hence the homeowner often places a small offering containing a pinch of rice and salt after cooking. The homeowner refers to Sang Bhuta Ngancang as the supernatural entity residing in the Lesung.

storage area in this house also functions as a place to keep cooking utensils and some ceremonial support tools.

Table 11. Pavilions as the frame of the courtyards in Desa Pangsang and Peguyangan.

6.1.2.4. House Temples and the Sacred Shrines

Regarding the adherence to traditional spatial arrangements, MR faced practical challenges in his Lumintang house due to the constraints imposed by the small land size. Traditional Balinese architecture guidelines, such as those dictating the orientation and placement of specific rooms, are ideally followed to ensure spiritual harmony. However, MR acknowledged the difficulty in fully implementing these traditional guidelines on a constrained urban plot. His approach was pragmatic; he prioritized the placement of the house temple, which, in his opinion, is the most important in Balinese homes due to its spiritual significance. The traditional rule states that the house temple should be located in the northeast part of the home, ideally at the highest point. In this case, while MR could not place the temple in the northeast corner of the ground floor due to other spatial needs, he adapted by situating it on the third floor, still aligning it with the northeast direction and elevating its position. MR argues that the elevation of the temple complies with spiritual mandates and symbolically enhances its sanctity, as height is associated with holiness in Balinese Hindu traditional principles.

During the initial phases of the design process, the primary consideration was the location of the sacred space. MR recounted initial confusion regarding the optimal placement of the house temple. However, as the construction of the structure progressed, an unforeseen opportunity

arose that seemed to guide the decision-making process in a serendipitous manner. MR described how, unexpectedly, there were surplus materials after constructing the intended two stories of the house. He interpreted this as a spiritual sign and used the extra materials to construct a small third floor, which would then house the temple. He portrayed the decision as almost providential, with him considering the extra materials as a “gift from the gods.” He expressed a belief that the availability of these materials was a divine indication that the house temple was meant to be situated at the highest point of the house. The decision to add a third floor was made collaboratively between the homeowner and the building workers and illustrates that the decisions can be fluid and responsive to the circumstances during the construction process. Clearly, MR felt that this practical decision was imbued with spiritual significance, emphasizing the deep interconnection between physical building practice and religious belief.

MR emphasized that the *merajan* (house temple) in his urban house adheres to traditional principles, similar to the origin house in his origin village. However, when it came to the placement of smaller shrines, known as *pelelinggih*, MR relied more on personal instinct than strict traditional guidelines. These *pelelinggih* are located in the front and back part of his house, chosen based on his comfort in performing rituals and making offerings. Regarding the decision-making process for the location and orientation of the *pelelinggih*, practical consideration played a significant role. For example, a mango tree in front of the yard initially took up space needed for other purposes, including parking and dedicated space for *pelelinggih*. Ultimately, the tree was removed to accommodate these needs. MR consciously decided not to consult a priest about the *pelelinggih* placement, which would potentially conflict with practical aspects of the function, such as garage placement. Interestingly, MR shared a symbolic dream involving a white monkey, believed to represent Hanuman, sitting on the mango tree before it was cut down. Having a

deep respect for spiritual signs and symbols, this dream influenced his decision to invest significantly in a larger and more elaborate pelinggih from Kapal, a region known for its craftsmanship in making such shrines.



Figure 34. Kapal, a region in Bali, is renowned for its skilled artisans, especially in the production of high-quality, and therefore costly, shrines. MR interprets his dream as a spiritual message and, out of respect for the guardian spirits of his home, he made a dedicated effort to provide the best “seat” for the house’s protector.

MR also found that an alley ends at the backside of his house. In this case, the building site is considered as “Karang Panes,” a land identified as having bad energy, which can adversely affect the well-being of those living on the site. To counteract the perceived energy, a small shrine (Pelinggih Indra Blaka) was erected at the end of the alley, on the back corner of MR’s house. MR believes that this shrine serves as a spiritual guard, inviting a sacred being to reside there and shield the home and its inhabitants from any potential harm caused by the negative energy.

While it is ideal to be performed daily, KS and MR mentioned that it is not mandatory to execute religious rituals every day. KS and MR further explains about the religious activities that

commonly take place in their homes, focusing particularly on the ritual of ngebanten canang, which involves the preparation and offering of canang (offerings). The interviewees emphasized that in an ideal situation, offerings should be made daily, especially when the necessary materials are available. The act of making offerings, KS noted, is a fundamental expression of devotion to the Gods. Neglecting to make offerings when one has the means and opportunity to do so is considered improper. This narrative provides an understanding on how the Balinese Hindu individuals navigate the complexities of maintaining the religious observances amidst the constraints of urban life. The ability to adjust the frequency and scale of religious activities according to personal circumstances ensures that religious practices remain a viable and meaningful part of the daily life, even when ideal conditions are not met.

House Temples and the Sacred Shrines		
	Origin house	Urban House
Summary	<i>The family builds the house temple at the Utama zone (kaja-kangin), the holiest part of the compound. In addition to the house temple, the owner builds other shrine (Penunggun Karang), place offerings at other particular locations, and build micro shrines (pelangkiran) inside the house.</i>	<i>The family builds the house temple at the highest level of the house, at the third floor, at Utama zone (kaja-kangin), the holiest part of the compound. In addition to the house temple, the owner builds other shrines (Penunggun Karang, Pelinggih Indra Blaka), place offerings at other particular locations, and build micro shrines (pelangkiran) inside the house.</i>

House Temple





Description

In the Northeast (Kaja-Kangin) area of the origin house's site, there is a space dedicated for the holy structures collectively known as the Sanggah Pamerajan (or Merajan). The Kaja-Kangin is the holies, most sacred orientation for the Balinese Hindus. The owner explains that "Pamerajan" derives from the word "raja" (king), and the Pamerajan is considered to be the place for kings. By "kings," the homeowner refers to the ancestors, and figures of great merit in the past whose status is equated with that of the gods. He further elaborates that the Merajan is the spiritual breath of Hindu families in Bali, dedicated to worshipping Sang Hyang Ida Widhi Wasa and the ancestors, serving as a gathering place for

In Merajan (house temple), it is generally customary to find at least three pelinggih (shrines): Pelinggih Taksu, Pelinggih Rong Telu, and Pelinggih Surya. Balinese Hindus believe that the number of pelinggih in a Merajan should be odd. However, due to limited land, and following a guidance of a trusted priest, the homeowner can combine these three pelinggih into a single Pelinggih Padma Sari. Furthermore, he mentioned, in extreme cases where a huse cannot construct a Pelinggih Padma Sari, this can be represented by a Pelangkiran (micro shrine), either attached to a wall or placed on a flat surface.

Thus, the homeowner decided to construct a Pelinggih Padma Sari on the third floor of

family members to strengthen and maintain familial bonds.

The Merajan in the original house comprises seven major Pelinggih, each with its specific function, and is also equipped with two Bale (pavilion) with raised floors. These Bales are used to place large offerings and also serves as the platform for the ceremonial leader during major rituals.

Besides the two small pavilion buildings, the house temple is intentionally left open without a roof. The Natah Merajan, encircled by a series of Pelinggih and pavilions, isolate users from other functional areas within the house compound while also providing an open vertical space. This design symbolizes the connection between the homeowner's position and the "sky," highlighting a spatial relationship that emphasizes both separation and sacred interaction.

his house. This house temple is positioned according to traditional layout principles, where the most sacred direction in a house is towards the northeast (Kaja Kangin). This third floor is small, measuring three by three meters square, accommodating just one Pelinggih Padma Sari and the Natah—an open space for the homeowner to conduct his daily rituals. This space is open-air and without any roofs, mirroring the condition of the house temple in the origin house. The open-air aspect gives a sense of isolation and openness to the sky, similar to what I experienced when entering the house temple at the origin house. During rituals, the owner places offerings on a platform in front of the pelinggih and sits on the floor, reciting his prayer mantras.

Pengunggun Karang





Description

The owner of the origin house refers to this shrine by another name: Pelinggih Ratu Nyoman. This designation aligns with a Priest's explanation that the deities residing in the Pelinggih Penunggun Karang are Sanghyang Durga Manik and her minister, Ratu Anglurah Nyoman Sakti Pegadangan, who is considered the King of all Bhuta.

Although the owner mentions that it is more common for a traditional Balinese house to only have one Pelinggih Penunggun Karang, this origin house features two Pelinggih Penunggun Karang; one is located on the eastern side of the Natab, while the second one is situated in the northwest part of the origin house site. Regarding this number, the owner cannot explain further the reasoning behind having two pelinggih, since it was built before he was born to this

While in some traditional houses the Pelinggih Penunggun Karang is located in the northwest of the yard, these seems to be a consensus that its function as a guardian makes it necessary to place it in front of the house. In this urban house, the Pelinggih Penunggun Karang is positioned in the southwest corner of the yard, at the front of the house.

The size of the Penunggun Karang in this house is notably larger and taller than typically seen. The owner explained in an interview that a dream he had was interpreted as a sign that he should maximize his efforts to respect the niskala element present at the front yard, the guardian spirit of the house. There is no logical explanation for this decision to install such a large shrine, but from his account, it is clear that he feels comfortable

origin house. However, I would add that the more common is having the one that is located in the northwest part of the Natah. Further investigation may need to be done regarding the one in the eastern part of the Natah, by comparing it to the other origin house.

and even proud of his decision to honor this niskala element.

Pelangkiran



Description

According to the owner of the origin house, he currently feels that his spiritual needs are met with the group of shrines already present in his home. He believes that most of the existing shrines and house temple have covered the need for Pelangkiran, which are smaller/ micro shrines.

He adds that pelangkiran is necessary when a residence does not have enough land to build a larger shrine. However, in this origin house, there are still two Pelangkiran: one located in the Bale Dangan and another in the kitchen, for offering to Brahma, because of the fire element in the kitchen.

In the urban house in Peguyangan, the owner has placed a Pelangkiran in the kitchen, as an offering to Brahma, who is associated with fire element. Apart from this Pelangkiran, there are no other such shrines in the Peguyangan house. The activity of making offerings, particularly to gods and ancestors, is facilitated by the pelinggih Padma Sari located in the house temple on the third floor. The homeowner uses an intriguing analogy to describe the role of the Pelinggih Padma Sari in his urban home; he likens it to a mobile phone used to contact the shrines in the village and his origin home.

The homeowner analogizes making a call to the pelinggih in the village and origin house by conducting rituals at his urban house's shrine. This unconsciously illustrates his continued connection to his origin house and village, emphasizing that

when he performs his rituals, he remains tied to his roots and cultural heritage.

**Pelinggih
Indra Blaka**

Not available



Description

Pelinggih Indra Blaka is built to neutralize the negative energy, in relation to the character of the building site. Some building site is considered as “Karang Panes,” a site with bad energy. The building site of this origin house is not considered as a “Karang Panes.”

The backside of the property located at the end of an alley, thus, the site is considered as “Karang Panes.” To counteract the perceived negative energy, Pelinggih Indra Blaka was erected at this location. It is interesting to note that the Pelinggih Indra Blaka is not located within the property’s grounds but rather outside the boundary wall of the house., adjacent to the alley. This is typical, as Pelinggih Indra Blaka are generally placed outside the home, in locations believed harbor negative energy. The homeowner constructed this shrine and created an opening in the wall so that he can access the shrine from inside the house through a small hole that can be closed. This arrangement reflects his effort to ensure the continuity of protective rituals against negative energies while integrating them into the structural confines of the urban house.

Table 12. House temples and the sacred shrines in Desa Pangsan and Peguyangan.

6.2. Evidence of Patterns in Genealogical Group B

Within the genealogical group B, I interacted with a family from Tabanan village. The central figures are WM and his son DK. WM, the father, resides in the family's ancestral house, which was originally constructed in 1930. This origin house has undergone various modifications over the years to accommodate the expanding family, reflecting the adaptive nature of Balinese residential architecture to familial needs. Despite the inclusion of the whole origin house in the observation, the discussion regarding the rural house focuses primarily on WM's segment of the origin house. On the other hand, DK, WM's son, represents the migratory trend among younger generations who move to urban areas for occupational reasons. DK has relocated to Denpasar city, where he has constructed his own house, distinct from Tabanan's traditional family compound.

WM provided insightful stories regarding his family and how religious practices are interwoven with familial dynamics. He noted that religious expressions are highly dependent on individual circumstances and capabilities. This variability is not merely a reflection of personal choice but is also shaped by economic resources and spatial constraints within the home. This point is important as it highlights the adaptability and fluidity of religious practices, which are tailored to fit the practical realities of daily life. Born into a large family of thirteen siblings, with limited space in their origin home, adjustments had to be made as the house grew with the family. DK, on the other hand, opting for a rental agreement in Denpasar city. DK and his family secured a ten-year renewable lease for their land, which is a common practice in regions where outright land purchase options are limited or economically unfeasible.

We rent the land for ten years and can extend the rent every ten years. We built our house on this land. If we move out of this house, we may also need to communicate to the local Pura Subak, that

we have religiously fulfilled our obligation. Currently, it is not for sale, so we are unsure about it. The owner seems to have no plan to sell this land. However, he has sold some part of his land, so hopefully, someday, he will sell this land, too. He owns a big piece of land, divides the land into smaller lots, and rents the land.

DK, house owner

The decision to rent rather than own land is influenced by personal values and economic rationale. Inspired by a friend who prioritizes investing in his children's education over securing land ownership, DK embraces a similar philosophy. This perspective is shaped by a pragmatic view of asset utility and future planning, highlighting a shift from land as a permanent anchor to education as a means to secure economic and social mobility for the next generation. Moreover, the story of the friend who chose to rent a land and later saw his daughter move to the United States further illustrates the transitory nature of property and place. This narrative challenge DK's views of land as a legacy, suggesting a dynamic approach to property as a flexible resource rather than a permanent attachment.

The price to rent this land is very low. I pay two million and two hundred fifty thousand rupiahs annually (\$145), for one Are (Balinese unit of measurement, equal to 100 sq meter or 1,076 sq ft) of land. In 2025, we will extend our rent, and the price might increase to three million rupiahs annually. It is affordable for us.

DK, house owner

Economically, DK notes the affordability of their current rental agreement, which allows them to live within their means while also planning for potential cost increases in the future. The collaborative nature of their house construction, involving family members, also highlights the communal aspect of the clan.

6.2.1. Patterns of the Village: Tabanan and Kedu



Figure 35. Location of Desa Adat Tabanan in Bali Island, and the structure of the village. Red dot indicates the location of the origin house.

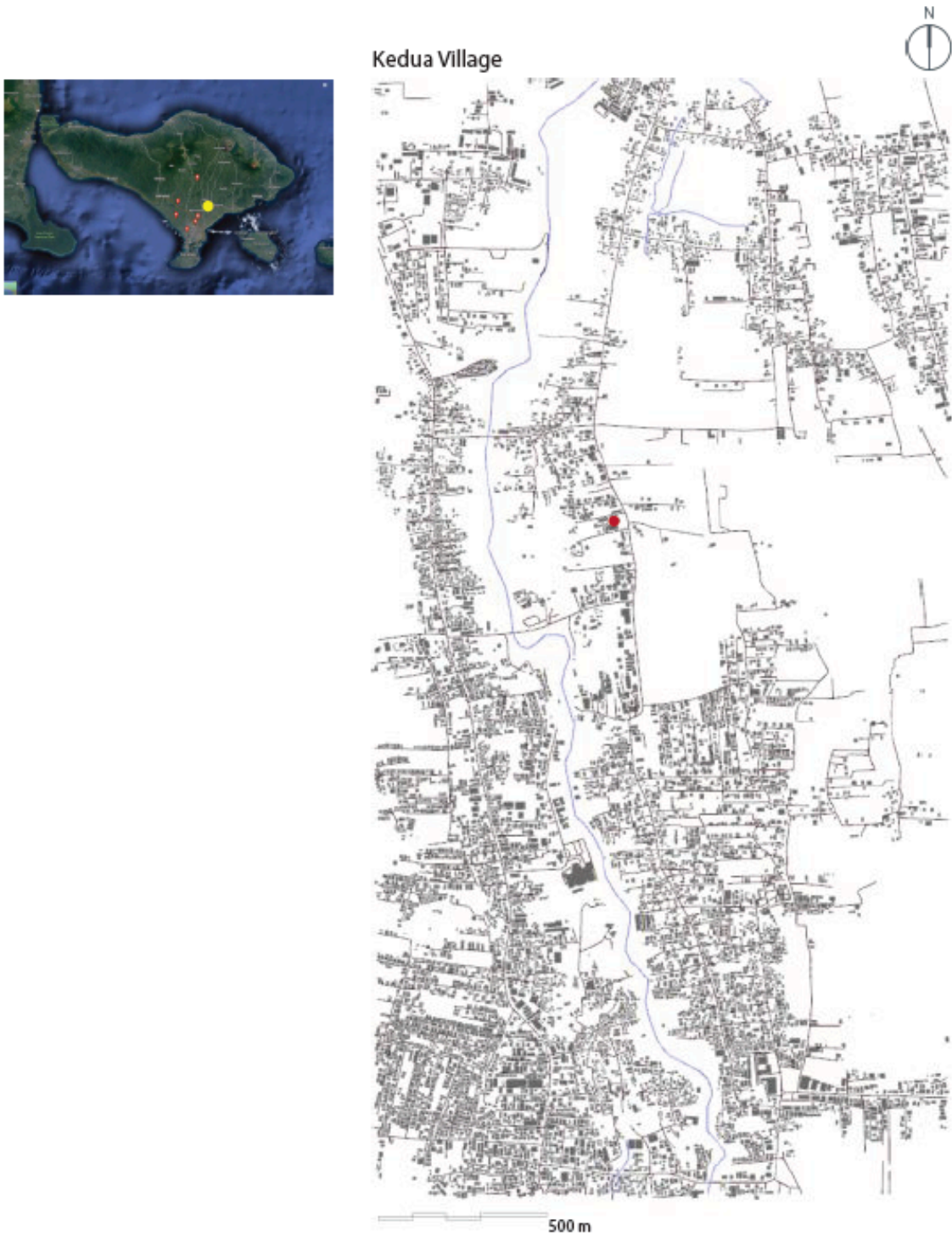


Figure 36. Location of Desa Kedu in Denpasar, Bali Island, and the structure of the village. Red dot indicates the location of the urban house.

Banjar Adat, as described by WM, serves as the foundational communal unit above the individual family. Each Banjar, led by Kelian Adat, operates under its own set of rules and regulations known as *Perarem* or *Anig-anig*, which are designed to maintain social solidarity and order within the Banjar. Central to the Banjar's social life is the Bale Banjar, a communal meeting place where important announcements are made using a kentongan—a traditional wooden drum with specific rhythmic beats that communicate various types of information, from emergencies to social events.

WM's account of his Banjar Adat, Banjar Adat Pasekan Belodan, provides a concrete example of how these structures function in daily life. Despite having 230 registered families, many reside outside the Banjar yet remain actively connected to their local family temple, traveling back for traditional ceremonies. WM's clan, which is listed as the dwellers of his origin house, currently consists of 23 families. All 23 families will be reunited in the origin house during every major religious celebration. This dynamic illustrates the deep cultural ties that extend beyond physical locality and the importance of ancestral and communal bonds in Balinese Hindu communities. Meanwhile, DK and his family currently live in Banjar Adat Kedua in Denpasar city.

The Banjar holds biannual meetings that serve as a platform for families to update the community on significant life events such as births, marriages, and departures from the Banjar. These meetings also address the financial health of the Banjar. Religious practices at the Banjar level are centered around the Pura, a temple that serves as the spiritual heart of the community, contrasting with the individual family temples known as *sanggah* or *merajan*.

On a larger scale, the Desa Adat comprises multiple Banjars, although it is possible for a Desa Adat to consist of only one Banjar Adat. Desa Adat Tabanan consists of 23 Banjar Adat, while

Desa Adat Kedua only consists of one Banjar Adat. The leader of Desa Adat, known as Bendesa Adat, presides over this broader assembly, which also follows its own *Anig-anig*.



Figure 37. Map of Banjar Pasekan Belodan, shows the land division of the Banjar. A closer look at the structure of the street also shows a strong north-south axis. Sc: Administrative office of the Tabanan village, 2022. Image taken by the author.

Desa Adat Tabanan is known for its unique attitude regarding the positioning of their sacred sites. Their “upstream,” or the holiest part of the land, is situated at the front side of the house rather than in the traditional northeast direction. This can be attributed to geographical features. Historically, the roads in Tabanan were built on higher elevations, causing the land to slope downwards towards the back of the property. As a result, the area closest to the road, being the highest point, was considered the most sacred or ‘upstream’. Therefore, early inhabitants of

Tabanan typically placed their places of worship at the front of their properties to align with this higher elevation.

Over time, the people of Tabanan continued to position their worship sites adjacent to the road, prioritizing the physical elevation over strict adherence to cardinal directions. This practice illustrates a logical adaptation to the geographical contours of the land, illustrating how Balinese spatial arrangements are influenced by the natural landscape. This observation is further corroborated by my personal observations from Bangli area, where family temples, or merajan, are also located next to the street, aligning with the highest elevation of the building sites there. Locals prefer not to place their holiest sites at lower elevations, as it conflicts with the traditional belief that sacred spaces should be in the ‘upstream’ or highest area. This pragmatic approach to religious and spatial arrangements seems to demonstrate a blend of logical reasoning with religious tradition, a characteristic feature of Balinese Hinduism known as *Desa kala Patra*, which acknowledges the importance of local conditions (*Desa*), time (*Kala*), and circumstances (*Patra*) in the interpretation and application of the religious principles.

6.2.1.1. The Three Worlds

In these major sites, there are restrictions regarding who can perform rituals and make offerings. This emphasizes the structured and hierarchical nature of religious practices, which dictates that only certain individuals in specific states of ritual purity can lead or participate actively in the rituals. In addition, many worships are communal activities led by the priests.

The Three Worlds		
	Origin Village	The City
Summary	<i>The Kayangan Tiga temples are built and positioned according to the treatises.</i>	<i>The Kayangan Tiga temples are built and positioned according to the treatises.</i>
<i>Image(s)</i>		
<i>Description</i>	<i>The Pura Desa and Pura Puseh in Tabanan village are situated opposite each other at one site, close to the village's main intersection, in the center of the village. This configuration highlights the spatial organization of religious structures within the village, segregating the Pura Dalem to emphasize distinct ceremonial function.</i>	<i>Desa Kedua, a relatively new village in Denpasar, equipped itself with a Pura Desa and Pura Puseh located centrally in the village on a single site. Meanwhile, the Pura Dalem is positioned at the southern end of Desa Kedua. Although the Pura Dalem features simpler construction and minimal decoration, it still fulfills its functional role effectively. This arrangement demonstrates how even newly established communities prioritize the presence and functional placement of jey religious structures to maintain cultural and spiritual practices.</i>

Table 13. Kahyangan Tiga Temples of Desa Tabanan and Kedua

6.2.1.2. Upstream-Downstream Axis

Upstream-Downstream Axis		
	Origin Village	The City
Summary	<i>The village is structured by Catus Patha, an intersection of kaja-kelod and kangin-kaub axis.</i>	<i>The main street follows the sacred buluteben axis.</i>
Image(s)		
Description	<i>The Desa Tabanan's layout is organized around the Catus Patha, a critical intersection where the Kaja-Kelod axis (north-south) and Kangin-Kauh axis (east-west) meet. This intersection forms the foundational grid upon which the village is developed, reflecting the traditional Balinese concept of spatial orientation that aligns</i>	<i>The structural layout of Desa Kedua significantly differs from what I observed in Desa Tabanan. In Desa Kedua, there is more pronounced influence of linear pathways shaping the village's structure. It is plausible to speculate that Desa Kedua evolved through linear development along its main road. This linear growth likely</i>

daily activities and community structures with cosmological principles, integrating both the geographical and metaphysical elements into the village's daily life.

The catus-patha forms the initial reference for establishing the grid and main pathways in the village, resulting a non-linear layout. Hence, although main streets could still be identified in the map, a grid structure is more visible in this village, compared to most Balinese village.

dictated the placement of buildings and public spaces.

Behind the initial row of buildings along the primary linear path, new homes are emerging, frequently transforming agricultural land into new residential areas. This development has resulted in the creation of small side streets branching off from the main road toward the back, forming a herringbone-like structure. These secondary roads allow for deeper penetration of residential development into previously undeveloped areas.

Table 14. Upstream-Downstream Axis of Desa Tabanan and Kedua

6.2.1.3. Frequent Intervals of Sacred Nodes

My travel around the Desa Adat Tabanan provides impressions regarding sacred spaces; thousands of shrines are distributed throughout the village. They may seem randomly placed, but of course, they are not. The function and distribution of pelinggih, small shrines found in both private and public spaces, reveal a pattern and understanding of Balinese spiritual practices. Pelinggih in public space primarily serves to neutralize negative energies that are believed to gather at specific locations. Placing a pelinggih strategically aims to maintain harmony within the community by mitigating disturbances that Balinese Hindus believe may affect daily life.

The placement of these shrines follows a pattern that reflects the community's understanding of where the negative energies are most likely to be found. This pattern is rooted in traditional beliefs and local knowledge about the geography and spiritual landscape of the area. For example, significant natural elements like large trees are often treated with reference and considered as entities that coexist with humans. These trees are adorned and provided with patterned fabrics, highlighting their importance and sacredness. A pelinggih may be erected next

to such trees to acknowledge their presence, reinforcing the idea that these natural elements are integral to the spiritual and ecological health of the area. A similar pattern is also applied to any natural elements that are considered important for the community.

Furthermore, the criteria for choosing the location of offerings are tied to each community member's specific needs and objectives. Thus, each Balinese Hindu may decide where to put their offerings and do their daily rituals. According to WM, this decision-making process is akin to seeking services from various government departments, where each department specializes in a distinct aspect of governance. Similarly, each *pelinggih* or temple is dedicated to a specific deity, serving a particular function. For example, a temple in a traditional market is likely dedicated to a deity associated with commerce and trade. This specialization reflects a broader religious belief that different aspects of life are governed by different divine forces, each with its sphere of influence.

Everybody may decide the locations to put canang/ offerings around their house, depending on their needs and objectives. Sang Hyang Widhi is one God. He will present in different expressions, and we worship the one God for his different roles. There are many Gods, but they are one. In many different roles, He will have different names. By having these many names and personifications, God shows and provides his blessings. Without his personifications, we cannot imagine him.

Ratu, a priest

The Tabanan family members also liken the structure of divine intervention to government departments, suggesting a hierarchical and organized approach to spiritual affairs. Different deities handle different aspects of worldly life, much like different departments handle specific civic duties. This analogy simplifies the complex nature of Hindu theology for the layperson and integrates religious practice with everyday social structure, making it more relatable and understandable.

Frequent Intervals of Sacred Nodes

	Origin Village	The City
Summary	<i>Shrines are built at places/ natural elements that are believed to have spiritual powers. The common locations are waterways, tree, rivers or creeks, roundabouts and intersections.</i>	<i>Shrines are built at places/ natural elements that are believed to have spiritual powers. The common locations are waterways, tree, rivers or creeks, roundabouts and intersections.</i>

Image(s)





<i>Description</i>	<p>Regarding the sacred nodes, what I see in Tabanan village is very similar to what I found in Pangsas village. Intersections and roundabouts are having deep spiritual meanings. The belief is similar; that these elements are seen as the representations of the universe's center and the crossing of cosmological axes. It is very common for residents to regularly place offerings at these sacred points as a way to maintain spiritual balance by appeasing resident spiritual beings. Similar practices of showing respect and devotion also extends to natural landmarks deemed important by the community. Places like large trees, riversides, bridges, receive similar tributes in the form of offerings.</p>	<p>In Desa Kedu, spiritual practices akin to those in rural areas are evident. Natural features such as large trees and rivers are treated with comparable reverence, marked by piles of offerings that visibly signify their spiritual significance. Less obvious yet equally important are the points where multiple water currents converge. These sites also seen as powerful for spiritual activities.</p> <p>Residents place offerings at various intersections, from major crossroads to smaller junctions of streets and alleys, guided by the same subjective "spiritual callings" that vary widely among individuals.</p>
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Table 15. Frequent intervals of sacred nodes of Desa Tabanan and Kedu.

6.2.1.4. The Townhall: Central Social Space

The Bale Banjar is open to community members for daily activities, but it primarily facilitates communal activities involving the residents. Personal activities are not conducted in the Bale Banjar. Regular activities in the Bale Banjar include the *Patokan* meeting held every six months, which discusses community finances and demographic changes such as marriages, divorces, births, and deaths. Keeping a regular record of the community members is crucial for the

distribution of rights and obligations within the Banjar. As long as the person is registered as a community member, their responsibilities and rights remain attached to them.

Other activities are meetings as needed, based on community activities and associations. For instance, the youth of Banjar have a group called Seko Teruno that houses their social activities. Another example includes the mothers of Banjar, who are part of the PKK (Family Welfare Empowerment) group, also holding regular activities in the Bale Banjar. Additional communal activities include clubs for traditional singing arts, Seko Gong club (traditional gamelan) for both men and women, and so forth. Before religious holidays, rehearsal ceremonies are also held in Bale Banjar, involving children as well. The numerous community groups ensure that the Bale Banjar is constantly bustling with daily activities. All community-owned equipment intended to facilitate community activities is stored at the Bale Banjar. From this, it is evident that the Bale Banjar supports all worldly community activities. Although the Bale Banjar has a small temple, there are hardly spiritual activities conducted at the Bale Banjar. Activities in this temple are limited to the temple's *Piodalan* (birthday) ceremonies and limited ceremonies, such as the Siwalatri ceremony. Social communal activities in the Bale Banjar are conducted in its public areas and do not extend into the temple area.

Traditionally, community-level traditional activities are led and coordinated by a Klian Adat, who has the authority to regulate and make decisions based on traditional customs. A treasurer, a secretary, and community representatives assist the Klian Adat. All activities are scheduled, recorded, and organized by the Banjar management, making it unlikely to find, for example, community members engaging in unscheduled activities in the Bale Banjar. According to informants, it is rare in the daily life of a Balinese adult to sit around idly, gossiping, or socializing without a planned event in public spaces. Adult events are generally scheduled.



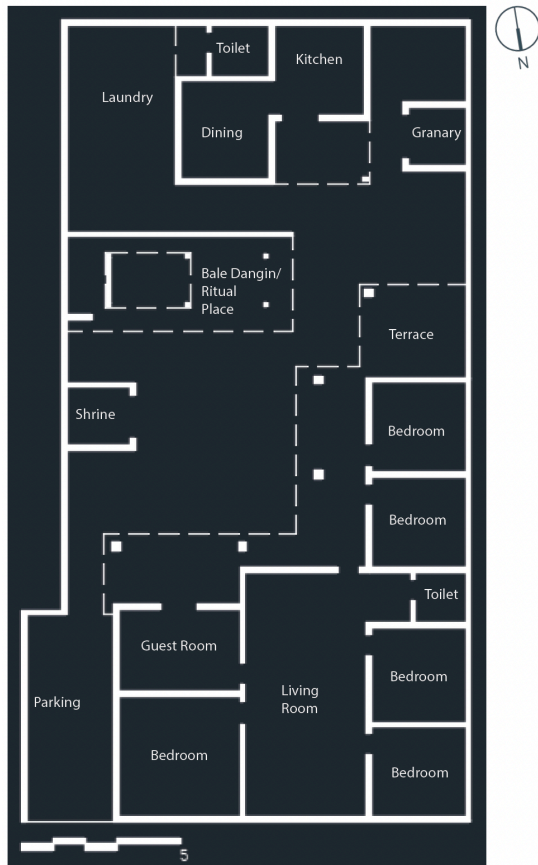
The Townhall: Central Social Space		
	Origin Village	The City
Summary	<i>Bale Banjar is built and facilitate the community social activities.</i>	<i>Bale Banjar is built and facilitate the community social activities.</i>
<i>Image(s)</i>		
<i>Description</i>	<p><i>Like other Banjar in Desa Tabanan, Banjar Pasekan Belodan also equipped with a Bale Banjar, a communal hall where members gather for discussions, cultural events, and various organizational activities. The Banjar serves as a cooperative community center, facilitating the organization of religious ceremonies, family celebrations, rituals, and also providing support in times of crisis.</i></p> <p><i>The multiple roles of the Bale Banjar: (1) It provides a large multipurpose space known as Bale Paruman, primarily used for community discussions and meetings, (2) It acts as an information dissemination point for community members, (3) It serves as a focal point for organizing religious activities among the residents, (4) It coordinates community labor efforts, facilitating collective tasks and projects, and (5) It hosts a variety of communal activities, including government program events and community-initiated groups such as traditional dance and art classes, and youth clubs.</i></p>	<p><i>Every resident of the village is a member of the local Banjar adat. However, newcomer from other regions of Bali Island may choose either to have dual Banjar membership, or only keeping their Banjar membership in their origin village. This will influence their obligation of adhering to the rights and responsibilities defined by local traditional rules.</i></p> <p><i>Nevertheless, the Bale Banjar in Banjar Kedua has identical role with the one in Banjar Pasekan Belodan, in Tabanan Village.</i></p>

Table 16. Bale Banjar of Desa Tabanan and Kedua

6.2.2. Patterns of the Houseyard: Tabanan and Kedu

Kota Tabanan House (place of origin)



Kedua House



Figure 38. The floorplans of WM's house and DK's house In Desa Tabanan and Desa Kedu.

The Tabanan house is situated on an ancestral building site and illustrates the ability of an origin house to accommodate expanding family units. As the family grows, each family builds its house within the site. The family occupied the land in 1930, and WM explains that he built his segment of the house in 1975 with the help of family members and a group of local builders.

On the other case study, my conversation with DK, provided his narrative regarding the gradual approach to his home construction, a process deeply influenced by his personal circumstances and economic considerations. The concept of the 'growing house' is particularly applied,

showcasing a responsive approach to the family’s immediate needs and financial capabilities. The construction started in 2015, when the land was first rented. The construction process of the house was paced according to the urgency dictated by their previous rental circumstances. The family extended their stay in their former residence by three months to manage the transition without rushing the construction process.



Figure 39. DK’s house exemplifies a common approach to self-built houses in urban areas where resources may be limited and where families prefer to expand and renovate as financial means allow (2022). The structure is primarily in a half-finished state, with various parts of the house being completed incrementally. The open ceiling shows familial-communal craftsmanship in casting the structural concrete and woodwork. Images were taken by the author.

For DK and his family, the completion of the home is not driven by a fixed deadline but evolves according to their life’s demands and financial opportunities. DK’s house was “half-finished” upon moving in, with ongoing work such as unfinished walls. However, this adaptability is crucial for understanding residential construction practices among economically diverse populations, where the ideal of a fully completed house at move-in is not always achievable or even desired. Instead, the home evolves alongside the family’s changing needs.

6.2.2.1. The Orientation System of the Houseyard

WM discusses the flexibility in applying Asta Kosala Kosali, the traditional architectural guide, which allows for adjustments based on the family’s resources and the site’s condition. In the discussion, he contrasts the current situation with the past when resources and labor were more readily available for traditional constructions.

The application of the traditional guidance is flexible. It is okay if you can only build a smaller version of any sacred element, and it is also allowed if you can build a bigger one. The size of a building may depend on the family’s ability and the site’s condition. However, the ideal condition is that you follow all the guidance of Asta Kosala Kosali.

WM, house owner

WM emphasizes that while he aspires to adhere to Asta Kosala Kosali's principles, certain deviations are inevitable. In his rural home, WM was able to segment functions into different buildings around a central courtyard. Furthermore, he contrasts this with his son’s urban residence, where such an expansive layout is unfeasible. In the city, the spatial constraints led to a significant modification of traditional designs, particularly in the construction of worship spaces.

Orientation System of the House Yard		
	Origin house	Urban House
Summary	<i>In the houseyard, the sacred zone exclusively hosts the house temple, while the profane region accommodates practical spaces like the kitchen. The intermediary space, nestled between these two extremes, serves as the backdrop for the family’s daily activities, housing the living area and sleeping pavilions.</i>	<i>The cosmological hierarchy is particularly applied in the placement of the house temple. Functions that facilitate family’s daily activities do not strictly following the cosmological guidance. However, the placement of bed, and sacred components (shrines) still follow the treatises.</i>

Natah



Description

In the origin house, the Natah (central courtyard) is located at the heart of the property, surrounded by pavilions. Upon entering the house compound, one immediately step into the Natah, which serves as a pivotal point for orienting oneself towards any of the surrounding pavilions. WM firmly believes that this Natah symbolizes the Catus Patha (intersections of four directions), representing a space where the sky and earth meet.

Upon entering the Natah, One's attention is immediately drawn to a visually prominent shrine situated in the eastern part of the courtyard. According to WM, the Pelinggih is known as pelinggih Penunggun Karang. Daily, WM's family presents offerings on the Pelinggih and on the ground of Natah, dedicated to Sanghyang Kala Bhucari, enhancing the spiritual significance of this area.

According to DK, there is no direct translation of the Natah from the origin house to his current home. However, one way to identify the similarities in the nature of the Natah in his house is by recognizing the open space and the location of the Pelinggih Penunggun Karang. It can be observed that the front yard of his house shares the same characteristics as the Natah in the origin house.

Additionally, another indication of the Natah-like quality is its role as a central orientation point and its character being surrounded by pavilions or functional spaces. In this context, the dining area in DKs house also embodies similar characteristics.

Teba



Not available

Description

The Teba (productive garden space) of the original house has become somewhat neglected. It is still utilized as a green space

In urban house in Desa Kedua, there is no identifiable Teba as DK has constructed his home right up to the rear boundary of

with a few productive plants. From a bird's eye view of the Teba, the remaining land now pertains to the Family Tengah's property.

An increase in family members and a shift in their professions have altered the land's function, leading to a diminished need for productive green spaces and a decreased necessity for livestock maintenance. This shift is a part of broader social transformation in the community, where the population growth, economic and lifestyle shifts impact the traditional land use.

the property, leaving no residual land available behind his house.

This reflects a common urban development pattern where (1) space constraints lead to maximizing the use of land for building, unlike in more traditional setting where Teba –functional openland—plays a critical role in daily domestic activities and spiritual practices; and (2) the shift illustrates the adaptation to the urban living condition and illustrates the lack of needs of having a green space at the back of the house.

Table 17. Orientation system of the houseyard of Desa Tabanan and Kedu.

6.2.2.2. Celebrated Entrances

When WM and I started our discussion regarding offerings in sacred space, the first thing that came to WM's mind was the entrance sections within the house compound. He begins his story by discussing the placement of offerings at the house's entrances—the main entrance and the house temple entrance. He probably starts from this point because these offerings are the most noticeable signs a visitor like me could observe.

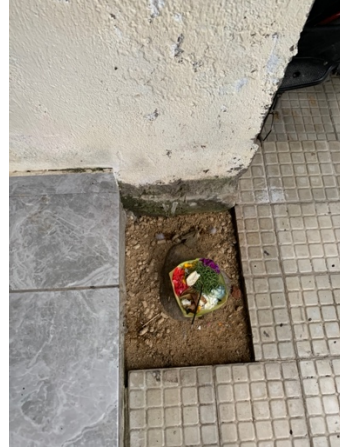
He explains that the offerings aimed at cleansing negative energies at the threshold and inviting positive energies to the home. This initial offering acts as a symbolic gesture of respect towards the guardian spirits of the household, setting a spiritual boundary that filters both physical and metaphysical energies entering the space. Further exploring the function of these offerings, WM distinguishes between those placed on the ground and those placed on elevated structures such as *pelinggih* and *pelangkiran*. Offerings on the ground are directed towards lower beings—spirits dwelling in the underworld, not God or ancestral spirits. These offerings are crucial for maintaining peace and preventing disturbances from these lower entities. The language used in

the mantras for these offerings is intentionally kept at a lower register, reflecting the hierarchical nature of spiritual interactions in Balinese daily offerings. Conversely, offerings placed on pelinggih or pelangkiran, which serve similar functions in ritual practices, symbolize piety and are directed toward higher spiritual realms.

Celebrated Entrances		
	Origin house	Urban House
Summary	<i>Decoration at the house's gates is minimal. However, the house temple's gates are highly decorated. The entrance is a system of space and structures: Lebuh, Angkul-angkul and Apit lawang, and hierarchy of floor levels.</i>	<i>Decorated gate is no longer built. Despite the missing physical components, the daily offerings for the deities are still provided.</i>

Lebuh





Description

In accordance with the traditional principles, WM mentioned that his family respect the various types of lebu—spaces esteemed as sacred transitional areas. These include: (1) the area before the angkul-angkul gate, (2) the central zone of the Natah, (3) the space fronting the gates of the house temple, and (4) the central expanse within the house temple itself. Each of these aras is distinguished by ground offerings. As a visitor, these offerings are clear signal that the spaces have the sacred importance of being transitional spaces. For the homeowner, the offerings that they place on the ground are a means of communication with the Bhutakala, the spirit from the underworld.

In the urban house, offerings placed on the ground at the front yard and entrance signify the same respect DK holds for the lebu space as in the traditional setting. During my visit to DK's house, I observed offerings at the entrance gate and at the center of the yard. These offerings symbolically represent the two lebu areas noted in discussions about the lebu in the origin house: (1) the space before the angkul-angkul gate, and (2) the central point of the Natah. Although the architectural elements differ, the replication of ritual practices from the origin house in physically distinct spaces of the urban home underlines a continuity of tradition and

The belief is that these offerings will engage the Bhutakala in aiding the maintenance of harmony and reject the negative energy from the outside of the house compound.

respect fro spiritual conventions across different architectural contexts.

Angkul- angkul



Not available

Description

In the origin house, the Angkul-angkul is strategically positioned at the entrance leading to the house temple, serving as gateway to the Natah of the house temple/ Merajan. Structurally, Angkul-angkul differs from the Candi Bentar, as it features a roof connecting the two sides of the pillars, establishing a distinct typological difference.

The Angkul-angkul is constructed higher than the surrounding boundary walls of the home or the house temple. This height not only emphasizes its importance as an entry point but also symbolically bridges the external world with the sacred internal space of the house temple, reinforcing its role as a threshold between the secular and the sacred.

In DK's urban house, there is no Angkul-angkul. A traditional gate structure commonly found in Balinese architecture. DK's decision to forgo this element was based on practical, functional, and cost considerations, deeming it non-essential for his urban residence.

Additionally, the ownership status of the land influence his prioritization of architectural features that are difficult to relocate or dismantle. Currently, an iron fence suffices for entry and exit access. This adaptation reflects the pragmatism required in urban settings where space and resources may be limited.

Floor Levels



Not available

Description

When discussing floor level differences, it is crucial to recognize that the original house has undergone renovations. In the most recent renovation, WM explained that while Bale Daja and Bale Daub were merged, he preserved the distinct characteristics of each pavilion as markers of their hierarchical significance.

This is evident in the maintained height differences of the floors. The section containing Bale Daja still features the highest floor level compared to the other pavilions, including Bale Dangin and Bale Daub.

In DK's urban house, variations in floor levels are solely functional, not reflective of the hierarchical significance of spaces, which is a deviation from the traditional practices and a manifestation of a pragmatic decision to not translating the element of the origin house.

The only height distinction occurs at the boundary between indoor and outdoor spaces, without any gradation based on the function of each area. This absence of varied floor levels suggests a departure from traditional architectural norms where different heights often symbolize the importance or sanctity of a specific area. This may indicate another approach, that in the urban house, the hierarchy of Madya function is no longer exist. Hence, the height difference only appears among different group of functions.

Table 18. Celebrated Entrance in of Desa Tabanan and Kedua.

6.2.2.3. Distribution of Functions: The Pavilions as the Frame of the Courtyard

In this origin house, Bale Dauh, Bale Adat, and kitchen are built surrounding the Natah. The main building of WM's family is L-shaped because Bale Dauh and Bale Daja have been integrated. In traditional settings, these structures serve distinct purposes; Bale Daja and Bale Dauh generally function as bedrooms, with the Bale Daja traditionally reserved for the eldest family member. Although both pavilions are merged into one building, varying terrace heights are still visible. This differentiation in height, as WM explains, is not merely aesthetic but is rooted in the principles of Asta Kosala Kosali. A higher elevation means a higher functional hierarchy. The higher section of the building, designated as the Bale Meten, is more significant than the other bedrooms, signifying its importance in the familial and social structure of the household.

I cannot accommodate all principles of the Asta Kosala Kosali, but at least I do not violate any of the rules. I would rather follow less principles and not violating any rules, than follow more principles but violate one rule. I believe that violating a rule will create a wasteful life.

WM, house owner

WM's approach to traditional religious principles showcases a pragmatic yet respectful adherence to cultural norms. He mentions a careful balance between following traditional guidelines and the practical limitations he faces, choosing to comply with fewer principles if it means avoiding any breach of traditional rules. All activities regarding WM's major traditional ceremonies are held in Bale Adat.

In DK's Denpasar house, the traditional building layouts, which are typically segregated according to function and hierarchy, must be reinterpreted to fit smaller, more constrained urban plots. He described a scenario where the idealized religious architectural principles are not

feasible due to the limited size of available land. As a result, he was compelled to adapt these principles to contemporary realities by consolidating multiple functions under one roof. The design process involves selective interpretation of traditional guidelines to identify which aspects can be realistically integrated into the self-built house. In DK's case, while he understands that the separation of functions is a hallmark of traditional Balinese architecture, such segregation becomes impractical in smaller urban houses. Instead, the house maintains symbolic elements of separation, such as different areas designated for specific activities, but within a single, unified structure.

The Pavillions as the Frame of the Courtyard		
	Origin house	Urban House
Summary	<i>The placement of each pavilion follows the treatises; the pavilions are built around the central courtyard based on traditional principles.</i>	<i>Central living room seems to replace the function of the central courtyard. Functions are built around central living room. The placement of functions not necessarily considers the hierarchy of functions.</i>

Bale Daja



Description	<i>The Bale Daja or Bale Meten, serves as the sleeping quarters for the oldest family member in the origin house and is positioned on the Kaja-kangin (northeast) side of the Natah, adhering to traditional</i>	<i>DK's urban house does not feature separate pavilions, yet the essence and function of Bale Daja are arguably translated into the parent's bedroom space. This room, situated in the Kaja-Kangin (northeast) corner of</i>
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Balinese architectural guidelines. From a typological perspective, the structure of Bale Daja has diverged from traditional forms, primarily due to its integration with Bale Daub into a singular L-shaped building.

Nonetheless, the distinct presence of Bale Daja remains conspicuous. Several aspects underscore the preservation of traditional principles, including: (1) the existence of a terrace and a higher floor level, (2) a façade that is distinct from the Bale Daub, maintaining symmetry in the arrangement of doors and windows, (3) substantial doors and windows that maintaining the solid character of traditional bale Daja, and (4) decorative elements specific to Bale Daja that set it apart from more ornamentally sparse Bale Daub adjacent to it.

The limited size of openings and transparency enhances the closed-off impression of its interior, maximizing both privacy and fortress-like security.

the property, suggests that DK has transferred the traditional placement characteristics of Bale Daja from the ancestral home to his urban dwelling.

However, DK's ability to replicate the architectural form and decorative elements of the original Bale Daja is constrained in the urban setting.

Another retained characteristic is the enclosed nature of the space, with the limited openings for natural light, thereby replicating the private and secure fortress-like atmosphere of the original Bale Daja. In this case, DK's decision illustrates the integration of the traditional spatial hierarchies and privacy norms into his urban context, thus maintaining a link with the urban house's design despite the altered physical manifestation.

Bale Daub



Description

Just like the Bale Daja, Bale Daub has undergone renovation, during which the homeowner of the ancestral house decided to merge Bale Daub with the Bale Daja, creating an L-shaped building. This

I assume that in DK's urban house, the bedrooms, including the children's and guest room, replicate the concept of Bale Daub from the origin house.

renovation and amalgamation did not erase certain characteristics and the layout of Bale Daub.

Observations on the positioning of the Bale Daub reveal that the Bale Daub is located on the western and northwest side of the Natab, aligning with traditional Balinese traditional guidelines. Typologically, the original footprint of Bale Daub remains visible, as the renovation did not alter the room dimensions. Two Bale Daubs, each previously having two rooms, have been combined, resulting in a floor plan that now displays four separate bedrooms divided by a central bathroom.

The original terrace and its elevation are maintained, yet now the terrace is connected with Bale Daja pavilion, forming a living room between Bale Daub and bale Daja. The original bale Daub lacked decorative elements, and it also reflected in current condition.

For health reasons, each room now features larger openings and improved air ventilation, which reduces the previously enclosed feel of the Bale Daub, though this change was made intentionally. WM wanted this renovation to reflect his careful effort to preserve the hierarchy of spaces while enhancing the living conditions to meet contemporary health and comfort standards.

From the lens of building layout, these rooms are positioned towards the Kaja (north) and Kaja-Kaub (northwest) of what can be considered the central Natab, assumed to be the dining area in DK's house, thus maintaining a similar locational aspect to the original house's Bale Daub in the northwest.

DK could not replicate the exact western location of one of the Bale Daubs from the ancestral house due to his property's orientation and the narrow frontage facing west, leading him to allocate the western part of the building for the living room.

Typologically, it seems DK has preserved the 'enclosed' nature of these rooms. It is plausible to suggest that DK's memories of the original Bale Daub prior to its renovation are reflected in these rooms. Like the Bale Daub in the ancestral home, the rooms in DK's urban residence remain undecorated. DK's approach to viewing his house as an evolving project, constantly under construction, has led him to avoid non-essential decorative elements.

Bale Dangin



Description

In the origin house, the Bale Dangin is situated in the eastern zone of the yard, to the south of Pelinggih Natah. The Bale Dangin serves multiple purposes. WM explains that this pavilion is commonly used by elders for resting or as a ceremonial space.

In instances where a family member passes away, the Bale Dangin serves as the initial place of repose before formal funeral ceremonies are conducted. The structure is open on two sides, accommodating various yajnya ceremonies and allowing guests to witness the rituals. Additionally, WM also notes that this pavilion is considered the seat of Bhatara Iswara, the divine manifestation ruling over heaven.

DK's urban house lacks a designated ceremonial space, but certain characteristics of the Bale Dangin from the ancestral home are observable in specific areas of this urban dwelling.

In DK's house, the dining room adapts to incorporate characteristics akin to those of traditional Bale Dangin. This area is where DK and his wife prepare for religious events. During less ceremonious times, this space is a multifunction space, either for relaxation or doing daily tasks. However, it does not facilitate sleeping, like the Bale Dangin does.

However, despite its versatility, the dining room in DK's house does not entirely replace the comprehensive ceremonial functions of a Bale Dangin found in traditional homes. For larger, community-centered religious ceremonies, DK and his family needs to return to their ancestral home in the village, where the traditions are fully embraced and can be conducted in a more culturally immersive setting.

Pawon



Description

In the origin house, the kitchen (pawon) is located in the southern (kelod) section, following the traditional Balinese guidelines for pavilion placement. WM believes that this strategic placement enhances prosperity and blessings related to food provision.

Architecturally, the kitchen divides into two main areas: the cooking space and the dining area. Compared to the other Bale in the house, the kitchen floor has the lowest elevation, reflecting its functional purpose.

WM also holds a spiritual perspective on this space, believing that it hosts Sanghyang Brahma, because the fire element of Brahma. Consequently, a dedicated shrine (pelangkiran) for Sanghyang Brahma is respectfully placed within the kitchen wall to honor his presence.

In the urban home, the kitchen is also located in the southern (Kelod) section, mirroring the positioning found in the original house. Architecturally, the urban kitchen is directly connected to the dining area.

Unlike the traditional house, there is no elevation difference between the kitchen floor and the other rooms in DK's house, and decorative elements are absent. This, still related to DK's approach to not include the non-essential elements in his urban house.

It appears that DK adheres to his father's belief that the kitchen is the domain of Sanghyang Brahma. Consequently, DK has also placed a pelangkiran, a micro shrine, on the kitchen wall to honor this belief, and provide daily offerings.

Jineng

Not available

Description

In the origin house, the Jineng building is situated in the southwest part of the compound, aligning with the traditional Balinese architectural guidelines. Historically, Jineng serves as a storage space for rice and unhusked rice for agrarian communities, with the food stored in the attic to protect them from rodents.

Positioned directly opposite to kitchen, Jineng exhibits a functional relationship, where Jineng, the kitchen, and the dining area operate as an interconnected system.

WM believes that Jineng holds a sacred value as the seat of Dewi Sri (Sanghyang Sri Manik Galih), and thus, he has attached a pelangkeiran to one of its posts. However, It is also noteworthy that this Jineng is no longer used for food storage due to the shift in WM's family profession from farming to other endeavors.

In DK's urban house, there is no specific area designated solely for food storage. The food storage area is integrated with kitchen for practical reasons.

This reflects the diminishing need for traditional food storage spaces like Jineng. Nowadays, food is stored in refrigerators, or in more compact storage spaces. Residents in urban areas (and possibly even in rural areas) no longer store food in the attics, unlike the practices of the past generations.

Table 19. Pavilions as the Frame of the courtyard in Desa Tabanan and Kedu.

6.2.2.4. House Temples and the Sacred Shrines

A pivotal aspect of WM's narrative is the adaptation seen in the Pelinggih Padmasana, a shrine dedicated as a universal seating for deities, akin to a "bus station" where any god may be called upon and worshipped temporarily.

In the city, it is almost impossible to build the house temple as we do in the origin house. In my son's house in the city, we cannot build a complete worship place. We only build one Pelinggih: Pelinggih Padmasana. Padmasana's function is similar to that of a bus station. Any God that you call could sit there temporarily. We could worship and invite any god to the Pelinggih Padmasana, and after the worship, the god may return to the god's realm.

WM, house owner

This "bus station" is crucial in urban homes where spatial constraints prevent the construction of multiple specific shrines. WM also elaborates that Pelinggih with a roof is typically dedicated to a specific deity, whereas the roofless Padmasana does not impose such limitations. Moreover, WM discusses the concept of 'nyawang'—praying from a distance—which is particularly relevant for urban dwellers who cannot regularly visit their origin homes. Since a Balinese Hindu could invite different gods to Pelinggih Padmasana, it is sufficient for a small house. The Pelinggih Padmasana enables the house owner to do various rituals and worship different gods. This practice reflects a broader theological flexibility within Balinese Hinduism, accommodating both spatial constraints and the diasporic realities of modern Balinese families. Additionally, the next vital Pelinggih in the urban house is the Pelinggih Penunggun karang, a shrine for the guardian of the home. In DK's urban house, these two shrines were built in the front yard.

WM also mentions about the availability of micro shrines within the house. Regarding the spatial distribution of the sacred location of these micro shrines, WM notes that typically, he makes the pelangkiran in each pavilion of the house, including the kitchen and the granary. Additionally,

for those involved in commerce, a pelangkiran within a business setting, such as a shop, is common to secure prosperity and divine blessing in their ventures.

When I arrived at DK's house in Banjar Adat Kedua, I observed a distinctive shrine at the front of his house. It resembled a pelinggih, a traditional Balinese shrine, but it was quite different from any I had seen elsewhere in Bali. This shrine was constructed with four slender, tall living trees at its corners, serving as pillars for a wooden platform. DK put some offerings on this platform. He told me that this is a pelinggih Indra Blaka. This pelinggih uniquely incorporates living Dadap trees at its corners, signifying a non-permanent commitment to the location. This practice of constructing a temporary shrine is common among those who may move frequently or are unsure of the permanence of their residence. This temporary-ness addresses concerns about the spiritual responsibilities of subsequent occupants who may not adhere to Balinese Hindu practices, illustrating the ethical considerations tied to the religious sites. In this case, DK may need to conduct a ceremony to disassemble the shrine before they move to another location. If the next person living in the house is a Balinese Hindu who can take care of the shrine, it is fine to leave it there. However, there is a concern that if the new resident fails to maintain the shrine properly and neglects to make offerings, the negative energy associated with this neglect could affect the previous owner. The pelinggih Indra Blaka is only built in sites that are considered as "karang panes." In Balinese Hindu belief, "karang panes" literally translates to "hot land." This concept is understood within the community as referring to areas that are spiritually charged with negative energy, making them unsuitable for residential purposes. Before they rent the land, and before the house was built, it used to be a rice field. The transition of land use from agricultural to residential, as mentioned by DK, involves rituals and permissions

to honor Dewi Sri, the deity of agriculture, reflecting the respect for the land and its spiritual guardians.

Entering DK's home, I noticed an offering, *canang*, placed on the ground right at the entrance to the small courtyard. Inside this courtyard, there were two specific types of shrines; one was *Pelinggih Padma* and the other was *peelinggih Penunggun Karang*, a guardian shrine. Apart from these two, there were no other shrines present in the courtyard.

The dining room functions as the center of DK's domestic activities. Here, DK hangs three *pelangkiran* on the wall. He explains that each *pelangkiran* represents different facets of his life and his spiritual duties: one from his previous office for protection at work, another as a temporary shrine in their new home before he built a permanent one. This second one acts as a conduit for them to engage in *ngayah*, a term that refers to performing service or duty, particularly in religious context. This allows them to connect their prayers to the *merajan*, or family temple, located in their origin house in Tabanan. As is customary, after marriage, the wife now a member of the husband's clan and align her religious practice with those of the husband's family temple at his ancestral home. The third *pelangkiran* is DK's wife's, for connecting with her ancestral spirits.

The Pelangkiran serves as a medium to pray for my family and ancestors from my origin house. When I pray, I call the ancestor's spirit to come and sit at the Pelangkiran, while I provide offerings and prayer. Even though a Balinese female is married and formally a member of her husband's clan, she still has the religious obligation to pray for her own ancestors, at least until her parents pass away. However, this interpretation may be different for other Balinese Hindu families. Most families believe that once the female is married, she has no rights and obligations to her family and ancestors.

DK's wife, house owner

In the bedroom, DK hang a pelangkiran that is dedicated to the spiritual siblings (the Kanda Pat). In his belief, these spiritual guardians accompany a person throughout life, including during his sleep. When he goes to the bedroom, he will sit them on the pelangkiran.

House Temples and the Sacred Shrines		
	Origin house	Urban House
Summary	<i>The family builds the house temple at the Utama zone (kaja-kangin), the holiest part of the compound. In addition to the house temple, the owner builds other shrine (Penunggun Karang), place offerings at other particular locations, and build micro shrines (pelangkiran) inside the house.</i>	<i>The family builds the house temple at the Utama zone (kaja-kangin), the holiest part of the compound. In addition to the house temple, the owner builds other shrines (Penunggun Karang, Pelinggih Indra Blaka), place offerings at other particular locations, and build micro shrines (pelangkiran) inside the house.</i>

House Temple





Description

WM's house is a part of a larger compound that accommodates 23 families, and the house temple within this compound serves these families during certain ceremonies. Although traditionally in Balinese traditional layout the northeast (Kaja-Kangin) is the most sacred orientation, for the residents of Tabanan, situating the house temple at the front of the plot is a common practice. Hence, the house temple of this origin house, located in the northern part (Kaja) of the entire compound, forms a central part of the ceremonial space.

The Merajan at this origin house contains nine min pelinggih, each designated for specific functions, complemented by one Bale Piasan, which is vital during significant rituals, providing space for large offerings and a platform for the ceremonial leader.

Furthermore, the house temple is designed without a roof, enhancing its sacred connection to the sky. The Natah Merajan is surrounded by various pelinggih and brickwall, creating a segregated and elevated open space.

Due to the constraints of limited space, DK opted to amalgamate the three distinct pelinggih into a singular Pelinggih Padma Sari, and DK chose to establish the Pelinggih Padma Sari in the front yard of his urban residence.

Uniquely, this house temple is situated in the northwest, deviating from the traditional northeast orientation (Kaja-Kangin), which is typically considered most sacred. This placement reflects a prevalent practice in Tabanan area, the origin village of DK, where the topography typically positions the main street higher than the rear of the property, leading residents to favor a higher, more prominent location for their house temples. In DK's community, it becomes common to situate the house temple at the front, regardless the land's elevation.

The temple's area is open air, akin to the house temple in DK's ancestral house, offering a sense of connection to the sky and solitude during rituals.

Pengunggu Karang



Description

In the origin house, the placement of the Pelinggih Pengunggu Karang on the eastern side of the compound, directly facing the entrance to the Natab, stands a unique deviation from typical Balinese architectural layout norms. This positioning, while atypical according to secondary sources, aligns with traditional placements observed in other historic structures within the village of Pangsan. This consistency across different homes suggests a localized adaptation of cultural practices that may merit further observation.

WM's belief that Ratu Anglurah Nyoman Sakti, revered as the King of all Bhuta, presides over this specific Pelinggih Pengunggu Karang underlines the profound spiritual significance attributed to this shrine. It is seen not merely as a structural feature but a crucial element in maintaining the spiritual safety and harmony of the home. According to his belief, communicating with the Bhuta through such shrines is crucial; it is thought to ensure their benevolence and protection over the household.

In DK's urban house, the Pelinggih Pengunggu Karang is situated in the northwest, adhering to the traditional Balinese layout. However, this differs from the origin house, where the placement of Pelinggih Pengunggu Karang does not align with its traditional location. It appears that in addition to translating his spatial experiences from the origin house, DK has also studied and modified aspects he felt were not in line with his layout principles, even though his house is not a traditional Balinese house.

Nonetheless, DK's spiritual beliefs remain consistent with those of his family, who hold that Ratu Anglurah Nyoman Sakti presides over the Pelinggih Pengunggu Karang, serving as the King of all Bhuta. DK believe that embracing the Bhuta is crucial for their assistance in safeguarding his home's compound and maintaining its harmonic state.

Pelangkiran



Description

WM elaborates that every detached building on the property should feature a Pelangkiran, as a form of reverence to the deity presiding over each structure. This practice aligns with the Nawa Sanga principles, which corresponds to specific cardinal directions.

One identical Pelangkiran with the origin house is the Pelangkiran on the kitchen wall. It consistent with the one that is also available in the origin house. The Pelangkiran is dedicated to Brahma and his fire elements.

Other Pelangkiran are: (1) originating from DK's office--serves as a safeguard in professional life, (2) temporary pelangkiran that was built before they start the construction of a permanent sbrine. This functions to facilitate ngayah, spiritually

connect them to the family temple in their origin house in Tabanan, and (3) the connector between DK's wife and her ancestral spirits.

Kanda Pat



Description

In front of the Bale Dangin, right beside the steps on both the right and left sides, there are spots designated for burying the placenta of newborns, accompanied by prayers requesting protection.

These prayers are addressed to Mother Earth, seeking her guidance to escort the Kanda Pat and the child along the path set by the Creator. Both locations beside the Bale Dangin serve the same purpose and are regularly honored with offerings.

Although the house does not have the kanda pat elements buried, DK hang a separate pelangkiran in his bedroom devoted to the Kanda Pat., spiritual siblings believed to accompany individuals throughout their lives, including during rest.

This Pelangkiran in their bedroom is acts as a resting place for these guardians, emphasizing their protective presence even as DK and his wife sleep.

Table 20. House temples and the sacred shrines in Desa Tabanan and Kedu.

6.3. Comparison Between Genealogical Groups: Persistence and Erasures

6.3.1. Daily Offerings

During my fieldwork in Bali, I personally noticed a tendency among some Balinese individuals to extend beyond their means in preparing offerings and conducting religious celebrations. This behavior is driven by a belief that more elaborate and expensive offerings can elevate one's

status both in the eyes of the divine and within the community's social hierarchy. This phenomenon reflects the interplay between religious devotion and social prestige, where the material expression of faith becomes intertwined with aspirations for social mobility and recognition. This behavior underscores a recent dialogue within the Balinese community about the meaning and purpose of religious offerings.

Regarding this matter, WM shares his personal and ethical dimensions that govern the preparation and presentation of offerings in his household. He mentions that the scale and substance of worship and offerings should align with an individual's financial and spiritual capacity. This principle ensures that these practices remain a genuine expression of devotion rather than a source of burden. Furthermore, WM stresses the importance of not overextending oneself financially to make offerings, highlighting that such actions might lead to the offerings being deemed unacceptable. The material capabilities shall be balanced with the spiritual aspirations.

The worship and the contents of the offerings depend on a person's ability. It depends on the calling and ability. We do not need to force ourselves to go beyond our ability to provide. We may not borrow money or steal to be able to provide offerings; our offerings may not be accepted.

WM, house owner

All informants seem to agree with traditional religious teachings, in this case, the concept of 'karmapala,' which advocates moderation and sincerity in religious practice. Karmapala translates to 'the fruit of our actions.' This principle suggests that all actions, including those related to religious offerings, have consequences that reflect the nature of the actions themselves. Thus, making offerings and providing sacred elements within one's means is not only a matter of practicality but also a moral and spiritual choice that aligns with the cosmic principle of cause and effect. This alignment between material capabilities and the spiritual aspirations ensures that

the spiritual integrity of the sacred is maintained, reinforcing the moral foundation upon which Balinese Hinduism is built.

According to DK's knowledge, the primary location to place the offerings are at the *pelinggih* and *pelangkiran*. The specific placement of offerings follows a well-established pattern that reflects the family's ancestral traditions and practices. A particularly significant practice mentioned by DK is the burial of the *Kanda Pat*, or umbilical cord, which marks a person's entry into the world and their connection to the family home. The placement of offerings at these burial sites, located strategically in front of the *Bale Adat*. The differentiation in the placement of the male and female umbilical cords—on the right and left sides of the entrance, respectively—also illustrates the deeply gendered nature of many Balinese cultural practices.

Furthermore, the use of *natab*, or the house courtyard, for offerings and as a space for major family ceremonies, highlights its central role in communal and family life. The courtyard serves as a stage for significant life events, from death rituals to other family gatherings. These structured placements of offerings and the use of specific areas for rituals are not merely acts of religious observance but also serve to maintain social order and familial continuity.

KS extends the discussion, that the offerings placed on the ground are typically intended for beings from the underworld, referred to as “*Rencang*” in Balinese, which translates to servant, or “*Ajudan*” (aide). These offerings are placed in locations that are considered to be closer to the underworld in spiritual geography, such as courtyards, road intersections, or near water sources. The choice of these locations is intentional, aiming to appease and honor these lower spirits, which, despite their status, play an essential role in the cosmological balance. In contrast, as KS explains, offerings intended for higher spiritual beings, such as Gods or ancestors, known

collectively as “Beliau” are placed on shrines. Shrines elevate the offerings physically and symbolically, reflecting the higher status of these beings in the spiritual hierarchy. He emphasized that each offering, whether placed on the ground or a shrine, is dedicated to specific Gods, ancestors, or underworld beings, indicating a targeted approach in these spiritual practices. This specificity ensures that each offering is appropriate and respectful, fulfilling the intended spiritual communication and obligation. It is fascinating to note that the Balinese language distinguishes between different types of “giving” with specific vocabulary reflecting the nature of exchange. The term “menghaturkan” is used to describe giving with full respect, often in formal or ceremonial contexts, suggesting a deep reverence in the act. In contrast, “ngejot” refers to giving without such respect, indicating a more casual or possibly dismissive attitude in the act of giving. These linguistic variations are used in two different levels of offerings: “menghaturkan” is used to describe the act of giving to the Gods or ancestors, while “ngejot” is used to describe the act of giving to lower spirits.

In KS’ opinion, the decision on where to place offerings is largely influenced by individual spiritual ‘calling.’ This calling dictates the spatial practices of individuals regarding their religious offerings, which can vary significantly among different people. He described how there is no standard distance for placing offerings; the practices are highly personalized. Some individuals feel a spiritual urge to place offerings at significant distances from their homes, at specific locations that hold particular meaning or spiritual connection to them. Conversely, others may feel that their spiritual obligations are sufficiently fulfilled by placing offerings within their immediate home environment, such as in their yard or just outside the house. He also noted that motivations for placing offerings at various distances could range from deeply personal spiritual callings to desires for social recognition, as reflected in the local Balinese song “Demem Kaden,”

which discusses following one's heart or seeking others' respect through displays of religious acts.

It could be the charm of the being that sits on the place, so people from the surrounding area are interested in coming and bringing offerings. Some people may have different personal stories about their reasons. Religion has standards, but in practice, each individual beings may practice it differently based on their belief and practice it based on their ability.

KS, house owner

Furthermore, KS pointed out that certain locations, or the mystical beings that occupy the locations, are believed to possess an inherent spiritual charm or power that attracts people to come and make offerings. This notion suggests that for Balinese Hindus, the physical and spiritual landscapes are intertwined, with specific sites gaining significance through the presence of spiritual beings or the historical and communal energies accumulated over time. As the religious framework provides general guidelines, the actual practice of these religious duties is subject to individual interpretation and capability. This flexibility allows for a diverse range of practices, accommodating personal beliefs and the practical realities of each respondent.

6.3.2. Architectural Attributes

While the aesthetic aspects of a house are significant, they are not inherently spiritual or religious. Instead, these details are largely influenced by the financial capabilities of the homeowners, indicating that more ornate features might represent economic status rather than religiosity. This perspective is crucial in the observation of the flexible nature of Balinese Hindu religious tradition, especially in how individuals navigate their economic realities in expressing their spirituality and social status through architecture. Furthermore, the Tabanan family discusses the flexibility inherent in the rules governing architectural and ceremonial practices. This flexibility allows individuals to adapt their practices according to their financial situation,

choosing from options that range from the most complete to the least complete yet still functionally similar. Hence, the practical constraints do not hinder the expression of religious or spiritual life; rather, they shape it in achievable and meaningful ways for each individual.

The way ceremonies are conducted and the details incorporated into a house thus serve as reflections of personal wealth and, by extension, personal identity. This relationship between financial status and ceremonial practice is indicative of how cultural identity and socio-economic status are interlinked in Balinese Hindu society. It illustrates a society where cultural expressions, whether through architecture or ritual, are tailored to reflect both the spiritual intentions and economic conditions of individuals.

6.3.3. Actors and Agencies

In Lumintang house, both MR and his wife are involved in the construction process of the house. Both are involved in constructing and finishing of the walls, exemplifies a hands-on approach to homeownership. MR, who handled the design of his house independently, relied on his brother-in-law, a civil engineer, for technical advice regarding building materials, their quantities, and associated costs. Regarding the decision-making process during the construction of the urban home, MR indicated that he did not engage in discussion with others, including his wife. He mentioned that the only external input he considered during the construction process is regarding the design of the staircase. The building workers contributed by providing calculations and design for the stairs—an area often requiring precise engineering to ensure safety and functionality. This limited external opinion suggests a strong personal vision and perhaps confidence in the homeowner's own choice and preferences. He holds autonomy in decision-making, distinct from more communal and consultative approaches seen in traditional Balinese village settings.

KS described that his rural house was designed with the involvement of undagi, a traditional architect, who meticulously calculated and integrated traditional values and guidelines into the design. The undagi provided the dimension and locational guidelines for each pavilion. In contrast, MR's house does not involve undagi and deviates from these conventions. MR clarified that his current urban residence does not adhere to traditional religious principles, primarily because his parent already possesses a traditional house, his origin house, in his origin village. MR expressed a lack of desire to replicate traditional architectural principles in the city, even if he had access to greater land and financial resources. This attitude underscores an alternative approach; choosing to separate the city homes from the traditional village homes, and viewing each as serving different purposes and embodying different aspects of their lives. Thus, the urban home is constructed pragmatically to suit the immediate family needs and constraints of city living rather than to fulfill traditional religious norms.

Despite his past occupation as a construction worker, WM acknowledges his limitations in mastering the entirety of Asta Kosala Kosali, the traditional architectural guide. In this case, his statement reflects the variance in knowledge (regarding the spatial rules) among Balinese individuals, who range from superficial familiarity to deep, ritualistic understanding. This spectrum of understanding necessitates the involvement of specific religious figures—the priests (pemangku, pedanda, or sulinggih)—who are well-versed in these traditions and aligned with the family clan and caste-specific practices. When discussing his role in the construction process, WM distinguishes between his practical experiences as a builder and the formalized role of an undagi. Unlike an undagi, who is deeply entrenched in the ceremonial and detailed aspects of Asta Kosala Kosali and whose validation is required for a structure to be considered complete, WM's involvement lacks the ritual authority to declare a building project finished. This

distinction highlights a significant cultural protocol in Balinese Hindu architecture, where the completion of a house is marked not merely by physical completion but by specific rituals that an undagi oversees.

During the construction process of his house, WM consulted a priest for the dimensions of the Bale Adat in his home. WM's Bale Adat dimensions are based on the priest's body measurements rather than fixed units. However, the dimensions of other pavilions are not based on traditional measurements. According to WM, since the Bale Adat is used for important rituals, it is the most important pavilion in his home; hence, it has symbolic priority in the application of traditional principles. For the other pavilions, he believes the Balinese tradition allows variations that accommodate personal and situational differences.

This flexibility extends to the practical adaptations WM applies to other parts of his home, where traditional dimensions are not strictly followed but where he tries to incorporate traditional principles, such as ensuring that no doors directly face one another. WM's belief that “violating a rule will create a wasteful life reveals a profound cultural belief in the sanctity of traditional guidelines as more than physical constructs—they are viewed as essential to leading a meaningful and harmonious life. This perspective is particularly important for understanding how traditional Balinese communities perceive and interact with their built environment, seeing it as a reflection of their cultural values and a conduit to a more spiritually aligned existence.

We cut the ceramics and did the floor, one room at a time. We remember the source of each material. We got most of the leftover materials from my husband's project site. The wood for the roof frame was cut very efficiently. Now, we may be able to save money to buy a piece of land.

DK, house owner

In Denpasar, DK's house construction is described as a communal effort involving not just the immediate family but also extended relatives. This collaborative process is economically advantageous—leveraging leftover materials from his employment in construction—and also culturally resonant, reinforcing family bonds through collective endeavors. The involvement of various family members, such as the father-in-law casting concrete for the door frames, an uncle constructing the roof frame, and some other family members helping with the construction, indicates the emphasis on kinship and cooperative spirit in familial projects.

6.4 Syntactical Measures: Choice, Integration, and Visibility

Syntactical Observation of the City Segments and Villages

This segment of the study presents the application of space syntax approach to look at the spatial configurations that define the dynamics of cities and villages, and later look deeper examine the house plans presented in the previous part of this chapter more deeply. In observing the city segments, the idea is to examine the Choice and Integration maps.

The Choice metric, often referred to as “betweenness,” measures the potential of a particular street or path to be used as a route within a network. It calculates the likelihood of a segment being on the shortest path between all other pairs of segments within a specified radius. In the result map, this metric should be useful for understanding urban connectivity and integration. A higher Choice value for a segment may suggest that it is more critical as a connector within its urban context, likely attracting more foot traffic and potentially more commercial activity. On the other hand, Integration analysis measures how accessible a segment is within a given radius compared to other segments in the network. A higher integration value indicates that a segment is more accessible and potentially more central within the local urban fabric, suggesting that it is

easier to reach from other parts of the network. Segments with high Integration values are likely to be more vibrant and socially engaging, attracting more people, and facilitating more robust activities. The radius of 2500 meters that is used in both Choice and Integration maps specifies that the metric calculation considers only paths or segments within this distance. This limitation helps focus the analysis on a local scale, which can be particularly helpful in seeing human movement or the influence of specific urban features within manageable distances.

Syntactical Measures of the Houses

From the previous part of this chapter which presents the evidence of Patterns in Balinese houses, we could understand that both rural and urban Balinese houses are a microcosm of the Balinese worldview, since they show strong connection with spiritual, communal, and environmental elements. The rural houses are typically divided into several pavilions, each serving specific functions and collectively forming a coherent unit around a *Natah*, the central courtyard. I would say that the houses are significant for its deep-rooted spiritual symbolism, mirroring the Balinese cosmological concept of ‘*Tri Hita Karana*.’ As these values transition to urban contexts, the evidence illustrates the challenge in how the traditional layouts adapt or resist the pressures of densification (urbanization). Using space syntax, this section presents the visibility and connectivity within Balinese house plan to understand how spaces are perceived, used, and navigated.

The visibility maps help to illustrate the visual openness or seclusion of different areas within the house, potentially affecting privacy, social interaction, and also spiritual practices. On the other hand, Connectivity maps will delineate how spaces are accessed and linked, highlighting the flow of movement that is essential for daily activities and ceremonial functions. the synthesis of both

visibility and connectivity may provide a view of how space is orchestrated and experienced in Balinese dwellings amidst urban transformations.

The Visibility Map utilizes a color gradient to represent the degree of visibility across the house. The scale ranges from red (most visible) to blue (least visible), with green and yellow representing intermediate visibility levels. This gradient is essential in identifying zones of high interaction and secluded areas within the house.

Syntactical Measures of Case Study 1.a. Pangsas Village

Syntactical Measures of Pangsas Village

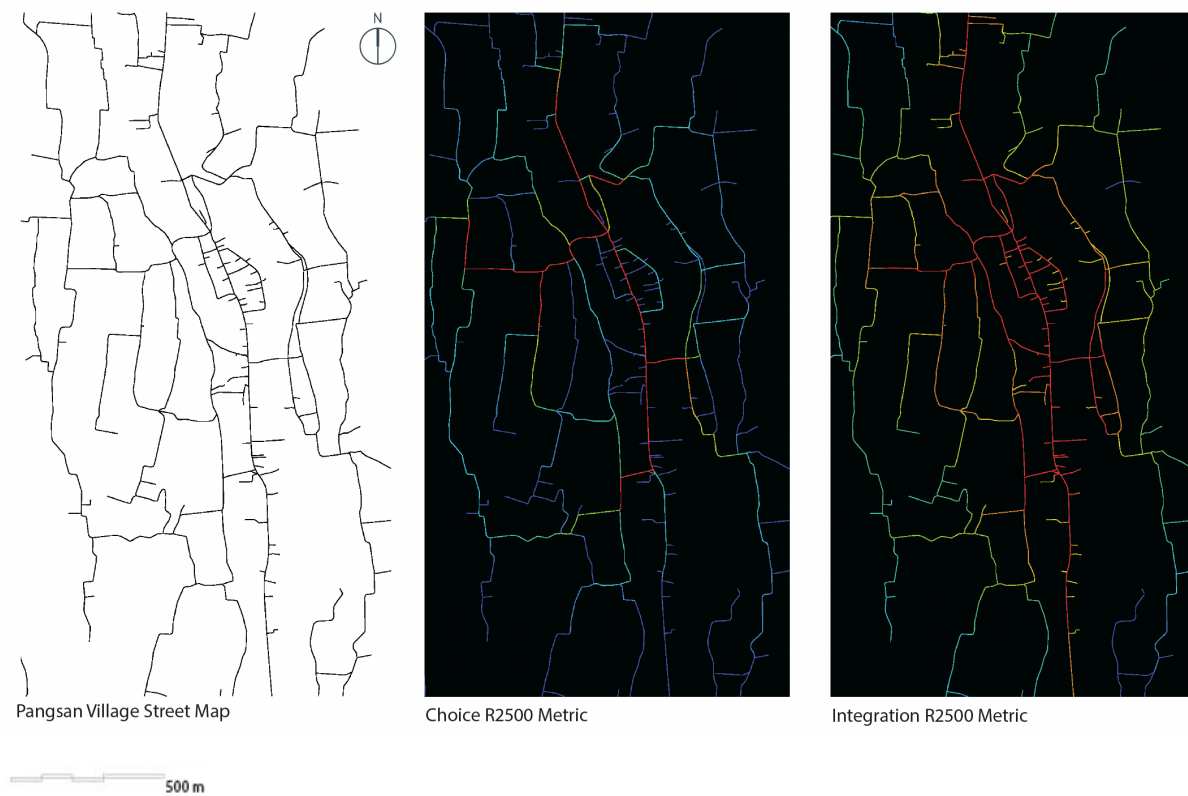


Figure 40. Choice and Integration Map of Pangsas Village.

The street map of Pangsas village portrays a network of streets that are predominantly irregular, which is typical of many traditional villages. This complexity may suggest a growth pattern

driven more by organic development than planned urban design. However, a deeper look at the pattern shows that there might be a strong structure that is visible and indicate “planning.”

The Choice R2500 Metric, often associated with the concept of “through-movement” potential, highlights the streets most likely to be used as routes within the given radius 2500 meters. In the visualization, the red lines indicate paths with the highest choice values, suggesting that these are pivotal routes likely used for longer trips or connecting different parts of the village. These routes serve as the village’s arteries, and because of their strategic importance, they could be vital for commercial activities, communal interactions, and also religious functions that are crucial for Balinese communities. The Integration R2500 Metric focuses on potential of each segment to be on the shortest paths between all pairs of segments within the area. High Integration values (shown in red) indicate that a path is centrally located and easily accessible from multiple points. In Pangsas village, the integrated routes suggest a high degree of accessibility and connectivity, implying that these areas are likely more vibrant and socially active, attracting more footfall and potentially enhancing social cohesion.

Areas where both high choice and high integration intersect denote critical nodes within the village. These nodes are crucial for both navigating through the village and for potential social, commercial, and communal religious activities. They are the strategic spots that could be ideal for marketplaces, community centers, public temples, or other public amenities. The maps reveal that while some areas in Pangsas village are highly navigable and accessible, others are more secluded and less integrated into the village’s social and functional scheme. However, the maps also show the logical reasoning and justification of (1) the placements of the Tri Kahyangan Temples. Pura Puseh and Pura Desa is located centrally in the village and are in the area where both high choice and high integration values intersect. (2) the intersect provides a logical

reasoning for additional commercial functions at the front of Pangsang house, since the house is located at an ideal location for commercial activities. (3) the placement of the Pura Dalem is separated, far deeper into the led dense part of the village, consistent with its function as the village's cemetery.

Visibility Map of Pangsang House

Natab, centrally located on the house plan, shows the highest visibility. This suggests that the *Natab* acts as a primary communal space where family members and guests more frequently interact, reflecting traditional Balinese values of community and openness. The granary and the dining area, directly connected to the kitchen, also exhibit high visibility, indicating its role as a secondary hub of social interaction where the daily activities of cooking and eating integrate seamlessly.

The kitchen and bedrooms adjacent to the main living areas display moderate visibility (yellow to green gradient). These areas, while private, remain sufficiently accessible, facilitating easy communication and movement between spaces dedicated to family life and personal space. The toilets are strategically placed to be less visible yet conveniently accessible from the bedrooms and living areas, ensuring privacy and functionality. The shrines and the temple area, marked by lower visibility, are indicative of the cultural emphasis on sanctity and privacy for religious practices. Their placement towards the periphery of the house layout minimizes disturbance and maintains a sacred atmosphere, aligned with Balinese spiritual customs. The garage and car workshop also demonstrate lower visibility, aligning with their functional roles requiring separation from the main living spaces.

Pangsans House (place of origin)

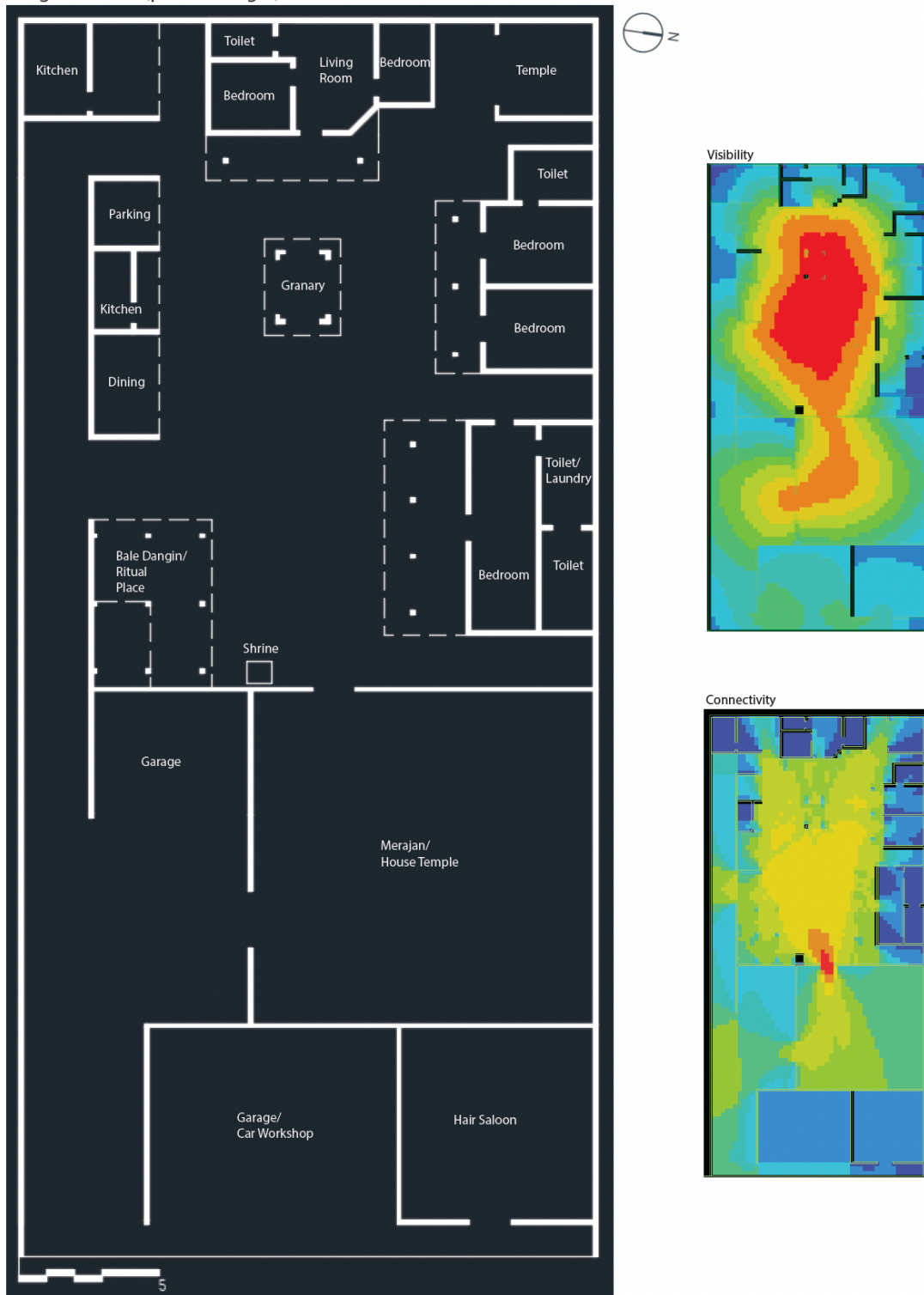


Figure 41. Pangsans house plan and its visibility map

The presence of multiple shrines within the house, each located in different visibility zones, illustrates the integration of spiritual life within the daily routines of the household. The spatial arrangement allows for spiritual practices to be conducted without interfering with the central activities of the house. Furthermore, a crucial cultural element in Balinese house, the Bale Daging, is positioned to ensure it is distinct yet integral to the house's layout. I would say that this placement respects its ceremonial importance while maintaining practical accessibility.

Some practical considerations may also be important to discuss. The layout of the kitchen near the dining areas and granary in the high visibility zones suggests a design focused on efficiency and social interaction, typical in Balinese houses where cooking is mostly a communal activity. Placement of bedrooms ensures that while privacy is maintained, there should be no sense isolation, considering its closeness to high visibility areas.

Syntactical Measures of Case Study 1.b. Peguyangan, Denpasar

Syntactical Measures of Peguyangan Village

The street map of Peguyangan area in Denpasar shows a labyrinth of pathways that are common in high-density urban kampung in Indonesia, where development is more organic. The complexity and irregularity of these pathways are reflective of the kampung's historical growth patterns, which have evolved based on immediate needs rather than systematic urban planning. The Choice R2500 Metric focuses on the potential streets to serve as throughfares within a 2500 meters radius. In the visualization, routes depicted in red indicate high choice values, suggesting these pathways are frequently used for moving through this part of the city. These are strategic routes, essential for both local traffic and connectivity to broader regional networks. They are more likely to carry economic significance by linking different parts of the city and facilitating trade and social interaction. The

integration R2500 Metric evaluates how integral each street segment is within the network, indicating potential for pedestrian movement and social interaction. Streets highlighted in red are the most integrated and accessible, suggesting that these areas are likely vibrant community hubs where social interactions are concentrated.

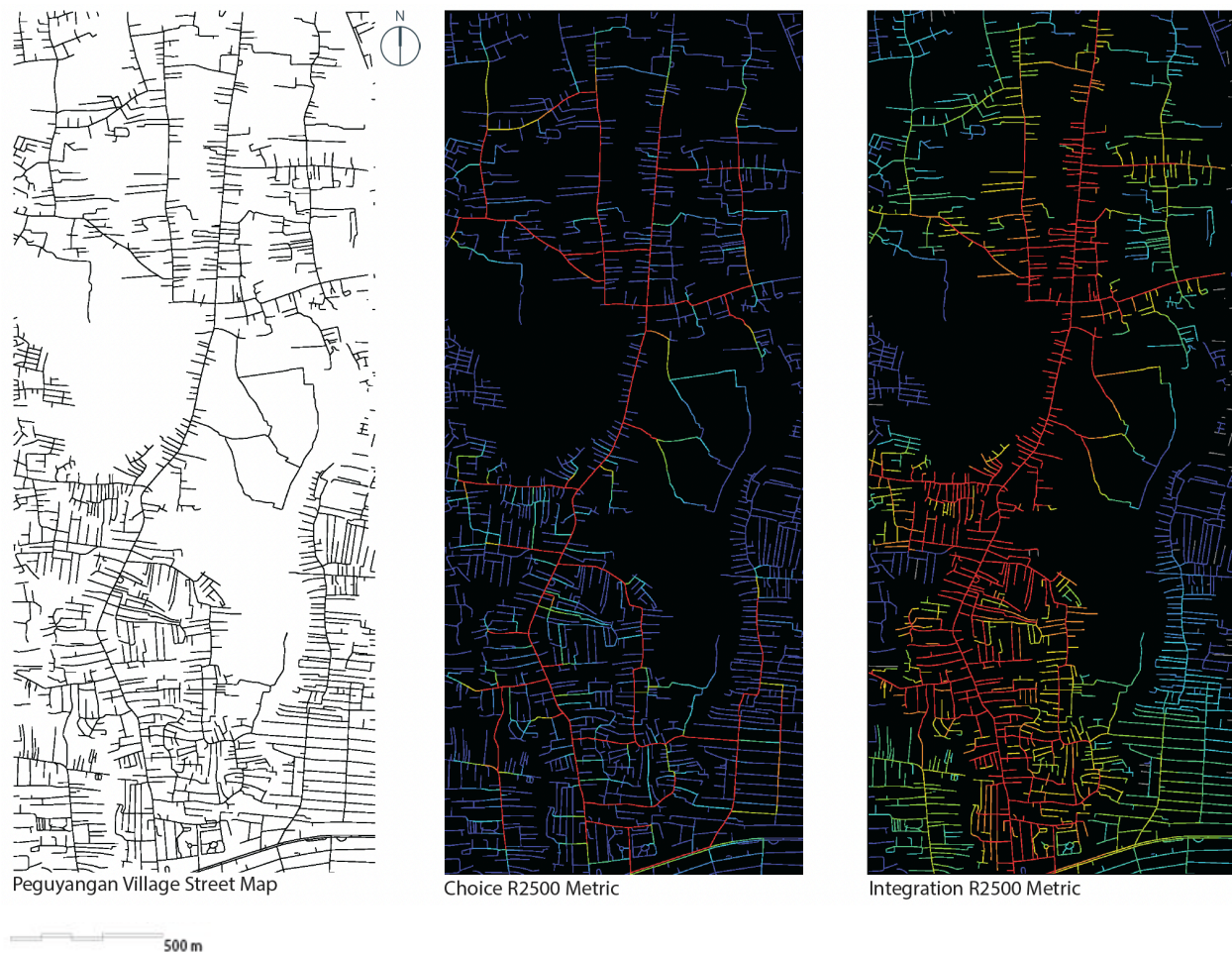


Figure 42. Choice and Integration Map of Peguyangan, Denpasar.

Areas where high choice and high integration coincide are particularly significant, acting as both critical passageways and vibrant social spaces. These areas are likely the liveliest parts of this segment. In Peguyangan village, the Tri Kahyangan Temple locations are relevant to these values. The Pura Desa and Pura Puseh are located at the north end of the segment, on the street where high

choice and high integration coincide. In the case of Pura Dalem, Peguyangan village has a number of Pura Dalem, but all are located deep inside this network, separating themselves from the arteries that are more busy and more vibrant locations.

Visibility Map of Peguyangan House

The more private zones, the bedrooms and toilets, exhibit lower visibility levels. However, direct connection with the kitchen/ dining on the first floor influence a higher visibility to the bedroom.

The living room and the dining area, which function as communal spaces for family interactions and social gatherings, are depicted in warmer colors, suggesting higher visibility. These areas are the hubs of domestic life in this Peguyangan house, facilitating communication and social interaction among the residents and their guests. The placement of these communal spaces adjacent to the house's entry points enhances their accessibility and visibility, making them welcoming areas for incoming person. The kitchen, located adjacent to the dining room, also show moderate to high visibility. This setup suggests that the kitchen areas serve as important point that supports both functional use and social interaction. The positioning likely facilitates easy access for family members during meal preparation and can serve as a gathering point during family activities.

The house temple, designated as a highly sacred area, is located on the third floor of the house, visually disconnected from other areas of the house and probably would be the one with the lowest visibility level. This placement is perfect for a function that needs isolation from the worldly activities and enhancing the spiritual experience while conducting the rituals. It underscores the approach of keeping the sacred space distinct yet accessible for religious and ritual purposes. While it is a part of the house, it retains a unique status through controlled visibility and access. The arrangement of several shrines throughout the house, each situated in distinct visibility areas,

demonstrates how spiritual practice are woven into the everyday life of the household. This layout enables the rituals to occur seamlessly alongside the main functions of the home without disruption.

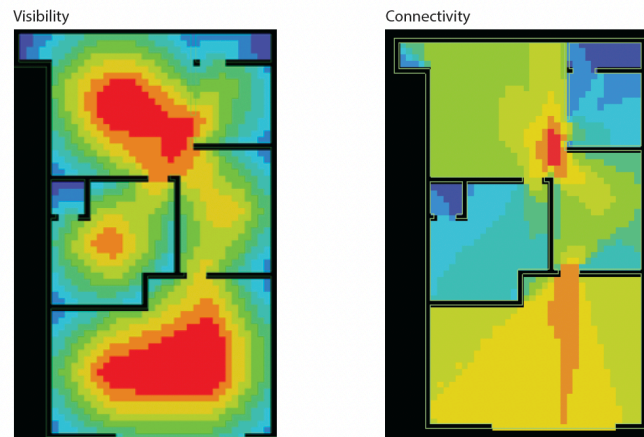
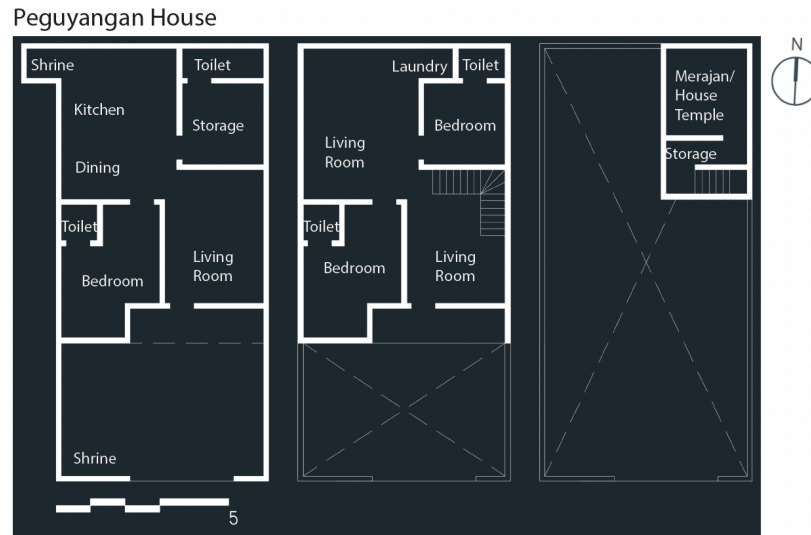


Figure 43. Peguyangan house plan and its visibility map.

The storage areas, essential for the organization and functionality of the house, are placed in lower visibility zones, which is practical for areas that do not require frequent or communal access. This placement helps in keeping the utilitarian spaces out from the direct view, thus reduce the visible clutter within the house.

Syntactical Measures of Case Study 2.a. Tabanan Village

Syntactical Measures of Tabanan Village

The village's street shows a network of pathways that intersect and weave through the urban blocks. Compared to other villages, Tabanan village has a stronger grid-like structure, which suggests a rich historical layering of pathways that have adapted to the geographical and social needs of the community over time. In this network, a balance between north-south axis and east-west axis is visible, indicating that the village structure departs from a different historical reasoning, compared to the villages that is dominated by one axis—north-south axis.

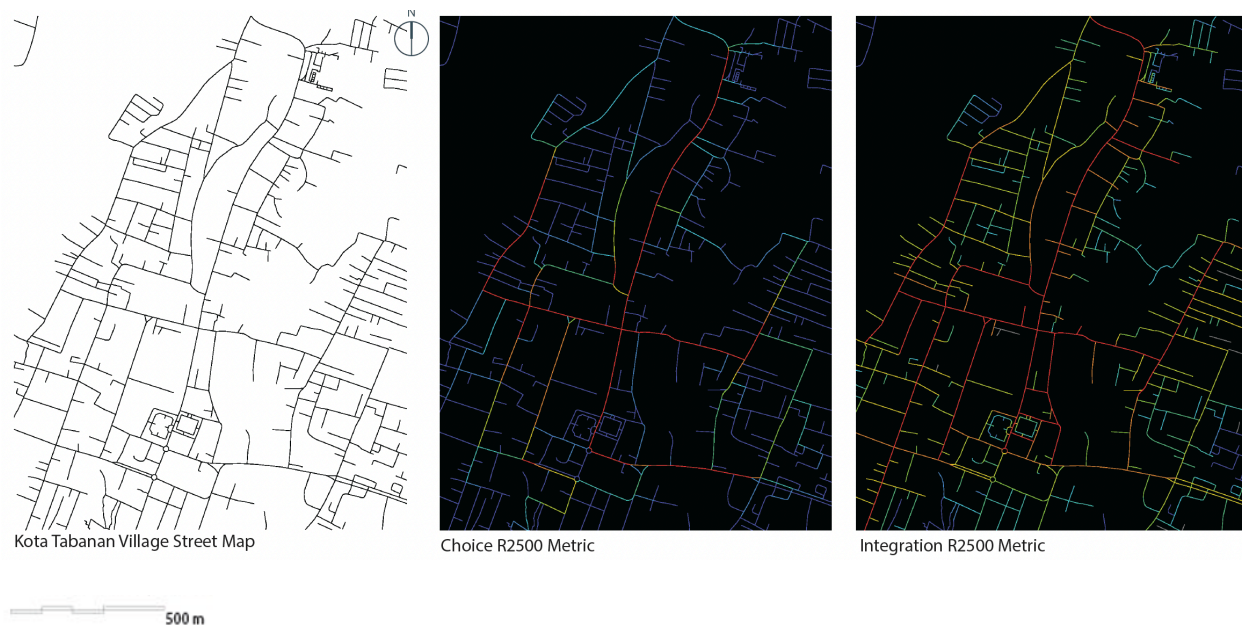


Figure 44. Choice and Integration Map of Tabanan Village.

The Choice R2500 Metric quantifies the likelihood of certain paths being used as routes within a 2500-meter radius. In the visualization, the warm colors indicate streets that are strategic for through movement, making them critical for the village's connectivity. The presence of such pathways suggests a hierarchical road system where certain streets serve as main arteries supporting the village's functional dynamics. Meanwhile, the Integration R2500 Metric highlights the streets that are

most accessible and thus likely to attract the most pedestrian movement and foster social interactions. The streets that are rendered in red colors are spatially integrated within the network, making them accessible from multiple points.

The combination of Choice and Integration provides a comprehensive understanding of the village's spatial efficiency and social vibrancy; they support both high-through traffic and social engagement. It is a significant confirmation of the Catus Patha religious principle, which shapes the main intersection of Tabanan village. The Catus Patha intersection's significance corresponds to the measurements of choice and integration value, which indicate that the intersection is a part of the street segments that are most accessible and integrated. The location of the Pura Tri Kahyangan also consistent with these values, that Pura Desa and Pura Puseh is located on the street that has high values of choice and integration, while the Pura Dalem and the cemetery are located further to the south, on the part of the network which has less choice and integration values.

Visibility Map of Tabanan House

The visibility graph demonstrates a significant concentration of high visibility centrally located within the Natah. This area acts as a crucial node that effectively integrates various parts of the house, underscoring its role not only as a green space but also a central gathering place where movement and visual connections interact. The visibility from this space extends in multiple directions, providing a visual link to both the adjacent kitchen and the living room, thereby enhancing social interaction and surveillance across these key communal areas.

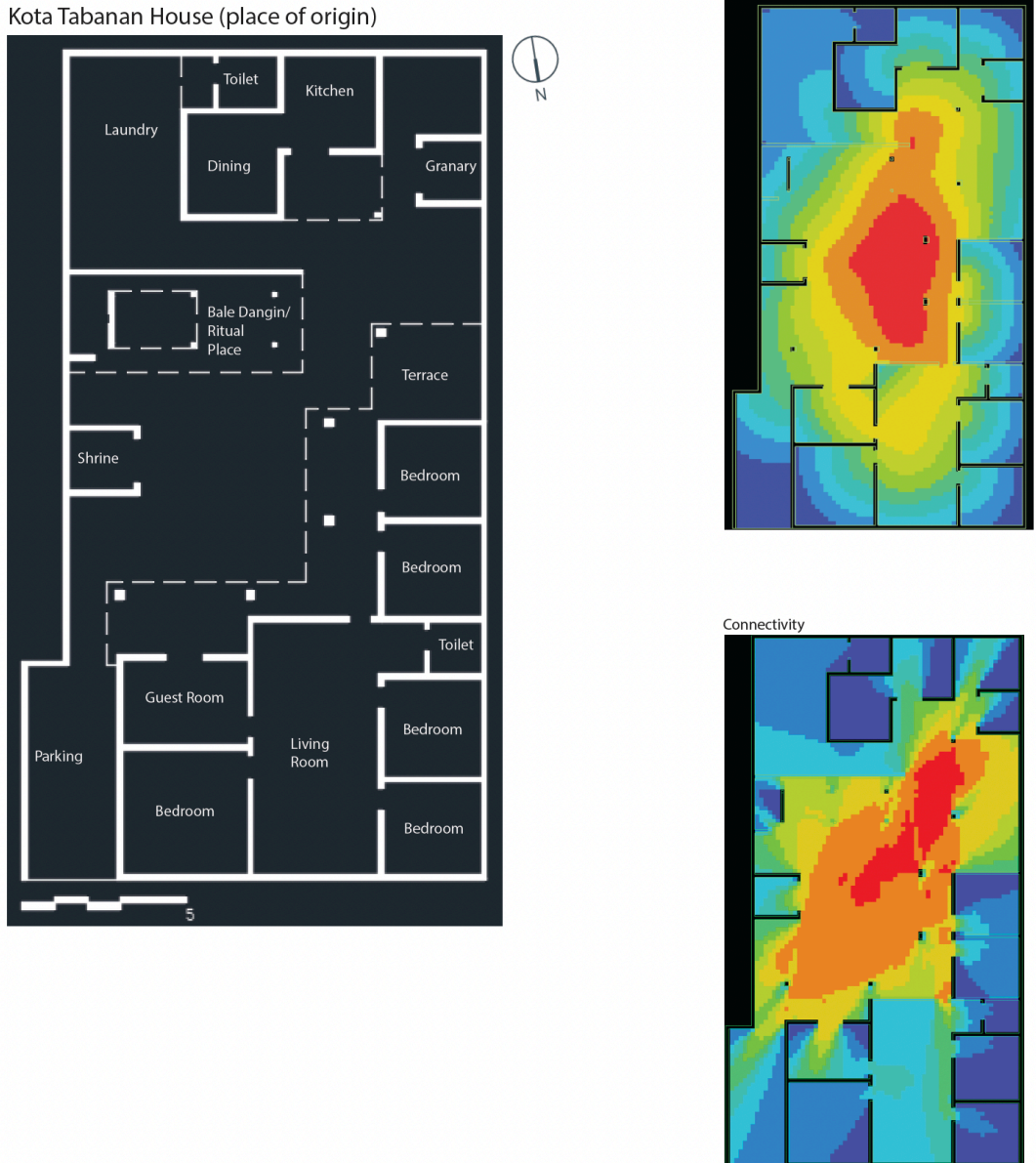


Figure 45. Tabanan house plan and its visibility map.

Adjacent to this central node, the living room also shows relatively high visibility, highlighted in yellow on the map. This space may function as secondary node that supports social and familial activities, offering a comfortable transition zone that connects the private bedrooms and semi-private areas (such as kitchen and dining). The positioning of the living room, adjacent to the main entrance and Bale Daja, further reinforces its function as a welcoming space for guests, allowing easy

access and good visibility from and to the entrance. The bedrooms are marked with lower visibility, suggesting more private and secluded areas designed for rest and personal activities. these spaces are strategically placed farther from the high-visibility zones, which minimizes disturbance and maximizes privacy.

Interestingly, the shrine areas, located at the periphery of the house plan, show shifting degree of visibility levels. The shrine near the entrance has higher visibility, which could be interpreted as a feature that illustrates its importance for protective rituals. In contrast, other shrines that are positioned deeper within the house layout reflect a more private setting for personal rituals.

Utility areas such as the laundry and toilets are located in lower visibility areas, reflecting their functional and service-oriented use and minimizing their impact on the aesthetics and flow of the main living spaces.

Syntactical Measures of Case Study 2.b. Kedula Village

Syntactical Measures of Kedula Village

The raw street map of Kedula, Denpasar, shows two strong north-south axes. I need to mention that the Desa Kedula is illustrated by the north-south axis on the right side. The difference between these two axes are visible, that the one on the left seems to have a higher degree of complexity, since it developed earlier, while the axis of Kedula Village seems less complex because it just recently developed. A satellite image may show that Kedula village is less dense, and may illustrate an important period of densification, as more and more green space is converted to residential use.



Figure 46. Choice and Integration Map of Kedu, Denpasar.

In the Choice R2500 Metric map, paths marked in red are high-choice routes, suggesting they are the paths likely used for through movement, linking major points of interest and external connections to neighboring areas. These routes suggest higher pedestrian or vehicular traffic and may be focal points for commercial activities or public transportation routes. On the other hand, the Integration R2500 Metric focuses on the potential for social interaction and accessibility. Highly integrated routes are also highlighted in red, indicating that these pathways are easily accessible from various parts of the village and likely serve as core social spaces for the residents.

The overlay of the choice and integration maps may show a pattern of areas where high choice intersects with high integration, suggesting nodes of significant urban activity. In this village, such routes are a major part of the north-south axis. All three main temples of the village are located on

this north-south axis, stressing their importance and functional hierarchy for the village members, and at the same time providing easy access and accessibility. The Pura Desa and Pura Puseh is located in the middle of the village, while the Pura Dalem is located on the southern part of the village.

Visibility Map of Kedula House

The brightest areas (red and orange) on the visibility map indicate spaces with the highest level of visibility and are typically central or junction spaces, which in this house are mainly the dining and living room areas. These spaces, due to their central location and connection to multiple spaces, act as nodes of interaction where household members are likely to encounter each other frequently. In contrast, the cooler colors (blue and green) on the map indicate spaces with more restricted visibility. These areas include the peripheral rooms such as the bedrooms and toilet. Their positioning towards the edges of the house plan and the darker colors on the visibility map suggest these rooms are visually segregated, supporting private functions that require less frequent interaction and more seclusion.

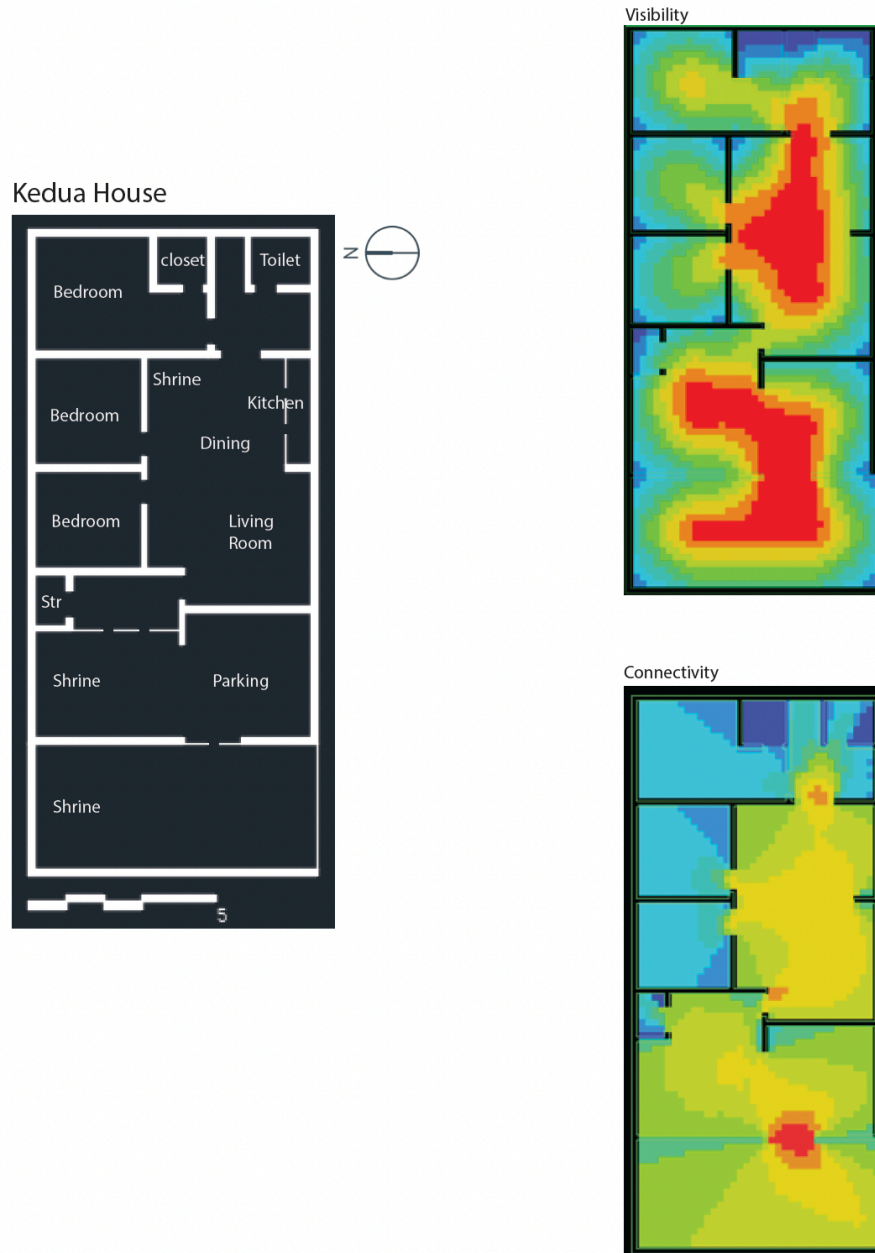


Figure 47. Kedula house plan and its visibility map.

The placement of shrines in multiple locations within the house, both near the entrance and adjacent to private areas like the bedrooms, reflect a cultural overlay that integrates spiritual practices within daily routines. A similar situation is also illustrated at the point where the three Pelangkirans are located. Although in reality these shrines are visible, the visibility map shows these areas as

somewhat isolated in terms of visual access, most probably because of the corner locations.

However, it may indicate a cultural preference for keeping spiritual practices discreet and personal.

Furthermore, the living room's strategic placement adjacent to the dining area enhances its accessibility and potential as a social space. Its high visibility connects it seamlessly with the houses social flow, making it ideal space for family gatherings and relaxation. Meanwhile, the parking area located near the houses entrance and the toilets located at the back of the house are less integrated, suggesting a more utilitarian use with limited need for visual connection to the house's core activities.

Chapter 7

Conclusion

7.1 Changes in the Patterns

This final chapter does not seek to reiterate the content of the preceding chapters but aims to elucidate the connections among the key themes and issues identified throughout the study. It initiates with an integrated discussion, casting a reflective lens on the research questions and distilling several insights from exploring Balinese settlement phenomena. Understanding the persistence and changes in dwellings goes beyond mere changes in physical characters and also goes deep into the realm of settlement as an inherently complex phenomenon that defies simplistic explanations. The variations in life ethos, ideals, and beliefs emerge as a central theme, providing a comprehensive lens through which the development of diverse physical environments can be understood. The distinct responses observed across different locales stem from the dynamic interplay of multiple factors, notably Balinese Hindu society's belief system, and its socio-cultural dimension.

To explore this phenomenon comprehensively, a detailed examination within defined genealogical groups is essential. Such an approach allows for a deeper understanding of the ways in which the belief system and the physical environment interact, shaping the living spaces and, by extension, the urban landscape in Bali. Therefore, this study emphasizes the importance of viewing the dwellings and their environment as living components of the cultural fabric, continually evolving in response to the changing dynamics of the inhabitants' lives.

7.2 Persistence of Religious Tradition

Adaptation to the Specifics of Place, Time, and Contexts

The observation illustrates that the symbolic significance of domestic spaces and the principles of spatial arrangements in the Balinese environment are rooted in Balinese Hindus' cosmological beliefs. Moreover, these cosmological beliefs are seen as reflections of an unchanging cosmic order. Every aspect of the microcosm mirrors the macrocosmic universe it resembles.

Consequently, every research participant agrees that 'building a house' goes beyond physical construction; it involves creating a space that facilitates interaction among the divine, human, and the realm of the underworld. Therefore, this connection between dwelling and inhabitants is based on a worldview that the Balinese act as mediators, maintaining the balance between the world of the divine, the world of humans, and the underworld.

In Bali, the traditional architectural model is deeply embedded with symbolic and sacred elements, as outlined in ancient texts known as lontars. Drawing upon the wisdom encapsulated within these lontars, Undagi (traditional architects) and Priests view construction not merely as a response to practical needs but as a continuation of an ancient religious tradition. This perspective fosters a traditional approach that emphasizes the replication of the original model, thereby extending its influence beyond mere architecture to shape various aspects of Balinese everyday life. However, it is crucial to recognize that the design and construction process of Balinese architecture is characterized by the dynamic exchange among the key figures: the owner, undagi, and the priest. The use of the term 'replication' might imply a straightforward act of copying traditional forms, but this simplifies the rich complexity of the actual process.

Chapter 5 of this dissertation illustrates the interplay and the relationships among these actors, shedding light on the dynamic roles they play. We need to unpack the contribution of human

creativity and decision-making in shaping the traditional structures. This traditional model emerges not just from a simple imitation but as the culmination of conscious design choices made by individuals. Thus, the Balinese traditional model should be viewed through the lens of a systematic design method, one that is orchestrated using a deeply engrained mental language and governed by a set of local architectural rules. The traditional model is the illustration of the sophistication inherent in the creation of the structures that acknowledge both the cultural legacy and the human ingenuity that informs them.

In Denpasar, the owners' approach to self-built houses also diverges significantly. Although the lontar texts theoretically offer a blueprint for future generations to design their living spaces, these ancient guides are seldom consulted in practice. Instead, construction typically follows a predetermined model passed down through generations, marking a departure from traditional principles. For these individuals, designing living spaces is about meeting current needs and functional requirements, choosing materials for their practical benefits, and navigating various external constraints, such as environmental factors, societal norms, and legal or economic considerations. This divergence is made possible by the Balinese tradition itself, which permits adaptations and innovations to the original model.

Crucially, guided by the principle of “desa, kala, patra” – which emphasizes adaptation to the specifics of place, time, and contexts – residents are encouraged to creatively address contemporary challenges. This principle allows for a dynamic interplay between tradition and innovation, enabling the Balinese to preserve their cultural heritage while adapting to modern realities. Intuitive (design) genius and methodologies amounting to mystical causation play a significant part and interact with the contextual solutions made by the actors.

Despite the differences between the “traditional” and the “self-built urban house,” a unifying concern among all research participants highlights the profound importance of architectural design in maintaining cosmological equilibrium. It is universally acknowledged that any flaw in design can disrupt this delicate balance, potentially ushering chaos into domestic life. In instances of persistent spatial issues, residents – regardless of their adherence to traditional or modern construction methods – may seek the expertise of Undagi and/or Priests. These specialists can diagnose the spatial discrepancies, recommend necessary modifications, and prescribe rituals to restore harmony. Thus, while the urban vernacular model in places like Denpasar remains inherently flexible and dynamic, the architectural decisions tied to religious traditions command significant weight. Such decisions are pivotal as they directly influence the well-being and livelihoods of households, illustrating a deep-rooted connection between architecture, tradition, and the everyday life of the Balinese people.

The Travel Back to the Origin Village and Origin House

Looking at the dwelling environments from the lens of ritualistic practices provides an understanding that these dwelling environments serve not only as dwelling places but also as a cultural nexus that maintains and strengthens familial and community bonds through religious and social practices. At the micro-scale, the intentional placements of offerings in specific areas of the house, whether as a part of daily routine or during important ceremonies, transcends religious devotion to acting as a vital mechanism for social organization and cohesion. These practices ensure that each family member, regardless of their usual place of residence, remains connected to their familial roots and heritage.

Moreover, the concept of being “religiously forced” to return to one’s ancestral home illustrates a powerful cultural expectation placed on family members. This expectation displays the role of religious practices in preserving family unity and continuity, facilitated by the spaces, the living architecture of the houses and dwelling environments. They ensure that despite the physical distance and the individual lives that family members may lead elsewhere, they remain integral to the family unit by participating in ongoing communal rituals and ceremonies at the origin house and village. This cyclical return to the ancestral house facilitated by ritual obligations helps sustain the lineage and keeps the generational ties alive. It serves as a social glue, binding the individual to the collective narrative of their family and community, ensuring that the religious tradition and familial knowledge are passed down and preserved across generations.

In the broader context of cultural anthropology, the “travel back to the origin village and origin house” clearly illustrates how architectural spaces and ritual practices are deeply linked to the mechanisms of social control and family dynamics. They reveal examples of how physical and sacred spaces within the dwelling environment can function as central elements in the governance of social and familial structures. This intertwining of space, ritual, and social order highlights an overlay of the architectural space and spiritual dimension of life within the Balinese Hindu culture and offers a clear lens for understanding the persistence of religious tradition.

7.3 When will ‘enough’ become ‘adequate’ or ‘sufficient?’

Is this sufficient? Is this aesthetic enough? Should I provide more details? Should I build more?

My time immersed in Balinese Hindu communities has informed me that in their Balinese Hindu culture, sufficiency is an ever-evolving concept shaped by the blend of material conditions, spiritual beliefs, social obligations, and familial ties. Witnessing these practices firsthand has

enriched my understanding of how Balinese Hindus strive to maintain a balanced existence, continually negotiating the demands of the Skala and Niskala. This dynamic equilibrium supports individual well-being and also upholds the cultural fabric that sustains the community across generations, teaching me the profound ways in which cultural values and daily life are interrelated in the pursuit of a balanced, sufficient existence.

Organized in Dedoose software, the interviews led to a list of themes that contribute to adequacy, to the state of being sufficient for the purpose concerned. Their religious expressions do not suggest abundance or excellence or even more than what is absolutely necessary. Ten themes are identified as common components that contribute to adequacy of religious architectural expressions in the case studies. Scheme 2 illustrates the grouping of the themes and Table 21 shows the co-occurrence of the codes, and



Scheme 2. Themes in Adequacy

Codes	Codes													
	Adequacy of Belief System's	Actors and Agencies: owner,	Community and Familial Support	Intergenerational Practices	Spiritual Duties of an Individual	Architectural Attributes	Adaptation of Architectural	Economic Decisions and	Sustainability and Resource Use	Daily Offerings	Flexibility in Religious Practice	Cultural Content and Material	Ancestral Connections	Ritualistic and Theological
Adequacy of Belief System's		31	13	4	17	30	13	12	5	41	11	8	11	16
Actors and Agencies: owner,	31		13	4	17	3		2	1	8	2	1	4	3
Community and Familial Support	13	13			1	2		2						
Intergenerational Practices	4	4			3					2			2	1
Spiritual Duties of an Individual	17	17	1	3		1			1	7	2	1	3	3
Architectural Attributes	30	3	2		1		13	12	5	6	3	2		2
Adaptation of Architectural	13					13				3	2			1
Economic Decisions and	12	2	2			12			1	1	1			
Sustainability and Resource Use	5	1			1	5		1		2		2		1
Daily Offerings	41	8		2	7	6	3	1	2		11	8	11	16
Flexibility in Religious Practice	11	2			2	3	2	1		11				1
Cultural Content and Material	8	1			1	2			2	8				3
Ancestral Connections	11	4		2	3					11				1
Ritualistic and Theological	16	3		1	3	2	1		1	16	1	3	1	

Table 21. Co-occurrence of codes in Dedoose.

The parent codes are (1) Actors and agencies, (2) Architectural attributes, and (3) Daily offerings.

The parent code “daily offerings” has the highest number of excerpts, indicating that it is the most significant theme contributing to the feeling of adequacy. In the level of child code, the code “spiritual duties of an individual” has the highest count, indicating that the feeling of adequacy may result from personal acts of fulfilling personal responsibilities that are expressed spatially.

In essence, the Balinese Hindu approach to architectural expression as a form of religious and cultural manifestation is a delicate balance of preservation and innovation. Rooted in a philosophical context that values humility, communal consensus, and adaptability, the architectural expression of the Balinese Hindu belief system remains a dynamic, living testimony to the community's faith and way of life, continually evolving yet fundamentally unchanged.

Themes in Adequacy	Description
Daily Offerings	
Cultural Context and Material Sufficiency	<p><i>The regular placement of offerings at designated sacred sites exemplifies a rhythmic consistency that suffices for spiritual balance. It is evident that individual callings significantly influence the placement of offerings. Each Balinese Hindu individuals may choose specific, spiritually strategic locations for their offerings based on their personal spiritual callings and the religious significance of various locations. The diversity in the placement of offerings among the Balinese reflects personalized spiritual practice within communal and cultural framework.</i></p> <p><i>At the heart of Balinese Hindu architectural expressions is the understanding of sufficiency that balances material needs with spiritual and social obligations. Ritual practices are not excessive but are performed to maintain cosmic and social order.</i></p>
Ritualistic and Theological	<p><i>A respondent detailed their approach to ritual spaces: "Before we build the house, we need to visit the local Pura Subak, and request permission from Dewi Sri." This practice of seeking spiritual clearance for land use emphasizes that sufficiency also involves ensuring that spiritual and communal norms are adequately respected, constituting enough spiritual observance to proceed with material actions.</i></p>
Ancestral Connections	<p><i>The spiritual life of Balinese Hindus profoundly influences their perception of sufficiency. The interviewee's description of Pelangkiran in their home underscores this: "The one on the right is a symbol, a medium to pray to my own ancestors. I believe it provides me protection during work." Here, sufficiency transcends physical</i></p>

boundaries, incorporating spiritual safeguards and ancestral blessings as essential elements of fulfilled life.

The Balinese Hindu's spiritual expressions are dedicated to specific Gods, ancestors, or underworld beings. This specificity ensures that each spatial-religious expression is appropriate and respectful, corresponds with a well-defined spiritual taxonomy.

Flexibility in Religious Practice

*Discussing the flexibility in the expression of belief system, one interviewee mentioned "the Balinese Hindu allows flexibility in interpreting the principles so that different groups may apply an interpretation accepted by their local members." This flexibility suggests that **sufficiency is not a static measure but a variable one, adaptable to different circumstances and interpretations within the community.***

Architectural Attributes

Sustainability and Resource Use

The practical aspect of sufficiency is evident in how Balinese Hindu approach housing construction. As one respondent noted, "we did not feel the urge to finish building this house." This approach to building 'enough'—a house that meets immediate needs without overextending financially or materially—is a manifestation of resourcefulness and a direct reflection of cultural ethos of measured sufficiency.

*The pragmatic and compassionate aspect of Balinese Hinduism allows individuals to adapt rituals to their circumstances, rather than forego them entirely. **Individuals can perform a scale-down version that requires fewer resources.** Such adjustments might involve the acts of reducing the complexities or simplify the expressions. This way, the essence of belief system is preserved, allowing the individual to stay connected with their spiritual practices and community traditions.*

Adaptation

*A part of the interview explained the adaptation of traditional architectural norms to modern constraints: "In traditional buildings, almost every function is built independently. In my house, all functions are under one roof." This adaptation shows the flexibility within Balinese Hindu culture to reinterpret and apply traditional religious principles to meet contemporary needs, suggesting that **sufficiency is also about adaptation and flexibility in making optimal use of available resources.***

Economic Decisions and Priorities

*The economic aspect of sufficiency is highlighted by an interviewee's strategic financial planning: "The price to rent this land is very low. It is affordable for us." Here, **sufficient is framed within the context of what is economically feasible, underscoring the pragmatic aspect of living within one's means.***

Actors and Agencies**Spiritual Duties**

*The role of gender in determining spiritual duties was highlighted: "Although a Balinese female is married and formally a member of her husband's clan, she still has the religious obligation to pray for her own ancestors." This dual obligation reflects an understanding that **sufficiency includes fulfilling all prescribed social and spiritual roles, regarding of personal life changes.***

Intergenerational Practices

*During one discussion regarding familial obligations and inheritance, one respondent mentioned "even though my parents have some land, and someday I might inherit a piece of land, I choose to rent land and build our own house." This decision reflects a personal and culturally ingrained notion of sufficiency that **prioritizes independence and immediate family needs over potential future gains.***

Community and Familial Support

The role of community in defining sufficiency was stated by an interviewee who spoke about communal home building: "My father-in-law cast the concrete for the door frame, and my uncle constructed the roof frame." This collective effort not only makes the construction process feasible and efficient but also enriches it with a sense of community sufficiency where communal contributions are enough to build a home.

Table 22. When will 'enough' become 'adequate?'

Rather than striving for perfect adherence to traditional religious architectural standards, which may not be feasible or practical in the modern urban context, there is an acceptance and even sufficiency felt in expressing a belief system. This sufficiency is not about lowering standards but rather about redefining them to uphold the spirit of religious tradition within the limitations and possibilities as people live in constrained urban environments. The exactness of traditional

norms is less crucial than their adaptability. It is not about its mathematical accuracy but about the workability accuracy, the overall fitness or appropriateness to its intended purpose.

Expansion of Cultural Insights

I need to state that within the exploration regarding the themes of sufficiency and architectural expressions within Balinese Hindu culture, it is important to acknowledge that the insights and observations described previously stem from an in-depth examination of two genealogical groups. While providing rich and textures understandings, this focus inevitably introduces a degree of generalization. Each genealogical group, with its unique historical, spiritual, and social dynamics, offers a distinct perspective on the broader spatial and cultural practices. However, the goal of this thematic exploration is not to simplify or reduce the complexity of Balinese Hindu culture but to highlight its rich complexities and the ways in which these are manifested across different communities.

The study of these two genealogical groups has allowed a detailed observation of how cultural practices, especially those related to building and living spaces, are informed by deeper spiritual and communal principles. For example, the adherence to traditional architectural guidelines Asta Kosala Kosali is observed across both groups. Yet, within each group, there are subtle differences in how these guidelines are interpreted and implemented, reflecting variations in very local traditions, historical influences, and sometimes based on the clan group.

Reflection on Generalization

Firstly, I feel the need to address the limitations inherent in generalizing findings from two genealogical groups to the entire spectrum of Balinese Hindu culture. Bali is an island with a rich

mosaic of communities, with plural adaptations of Hindu practices influenced by local geography, historical migrations, and interactions with other cultures. Therefore, while the themes identified provide a framework for understanding common cultural threads, they are starting points for deeper inquiry rather than conclusive summaries. Each theme is built from a range of practices that may vary from one community to another, from one genealogical group to another.

Next, the research question regarding the feeling of sufficiency in daily life, particularly in the context of religious expression in urban settings, is quite complex. While I have attempted to provide an answer based on my research findings, it is important to acknowledge that the methodologies employed may not capture every aspect of the issue. The evidence gathered through my data collection techniques may not fully address the depth of this question.

A pivotal concern is whether individuals feel their religious practices in the city are sufficient and fulfilling. I understand this is not a question we can directly pose to research participants, as they may not be fully aware of potential gaps in their spiritual experiences. The limitations of this dissertation mean that while it thoroughly explores the transformation of religious practices from rural to urban contexts, it may not fully resolve questions of sufficiency.

Further, the perception of adequacy in religious expression is highly subjective, rooted in my observation and discussions with my research participants. Assessing whether the changes in religious practices meet the community's needs is challenging and could arguably be explored in a separate study. This is especially relevant considering that when people in many places in the world migrate, their connection to their origins is maintained, influencing how they adapt their practices in the new environment. This adaptation and its sufficiency are central to

understanding the broader implications of cultural and religious continuity (and their architectural expressions) in the face of urban migration.

Embracing Complexities

The complexity illustrated in this dissertation reflects the adaptive nature of Balinese Hindu culture, particularly in response to modern challenges such as urbanization, globalization, and environmental changes. For example, the theme of ‘sustainability and resource use’ illustrates both traditional and innovative practices that communities may employ to balance ecological integrity with modern economic demands. Similarly, the theme ‘flexibility in religious practice’ illustrates how the Balinese Hindu accommodates shifts in societal structures and personal beliefs, allowing fluid spatial-religious expressions that adapt to new contexts.

This is a simple house, but this is enough for me.

a research participant

7.4 The implication of the research for future investigation of Balinese urban environment

Vernacular cultures exist in some relationship to a larger context of culture, and vernacular culture is not stagnant and unchanging. Vernacular architecture, by its nature, evolves and adapt, responding to environmental, technological, and social changes. It is not static; rather, it exists in a fluid relationship with the larger cultural context, continually integrating modern influences while preserving traditional practices. In the context of Balinese Hinduism, architectural expressions of the belief system in urban areas are testaments to this adaptability. As urbanization increases density and reduces available space, Balinese architectural practices—originally having its more sprawling, rural settings—must adjust. This adaptation is evident in how

sacred spaces, traditional building skills, and/or traditional designs are incorporated into smaller, more confined urban plots. For instance, the typical expansive family compounds with multiple pavilions may be interpreted in urban settings into multi-functional areas with single structure that still adhere to the spiritual and communal needs. The adaptations that occurred ensure that the architecture remains relevant and functional. Sacred spaces like family shrines and community temples are integrated into urban homes and neighborhoods, maintaining their cardinal orientation and hierarchical spatial arrangements in accordance with cosmic beliefs, despite limited space.

Therefore, the interplay in urban areas presents a broader theme: the study of resilience and adaptability of cultural practices, by looking at the survival of traditional forms and practices in new and changing environments, particularly as we intentionally increase the density of physical environment and demonstrating the capacity of vernacular culture to evolve and keeping the feeling of adequacy while staying deeply rooted in its foundational beliefs and values.

APPENDICES

A. IRB APPROVAL



APPROVAL

August 15, 2022

Dimas Wicaksono
dimasw@uoregon.edu

Dear Dimas Wicaksono:

The Committee for Protection of Human Subjects (CPHS), the University of Oregon Institutional Review Board (IRB), reviewed and approved the following submission.

Type of Review:	Initial Study
Study Title:	Traditional Principles in the Urban Vernacular Environment: Study of Persistence and Erasures of Belief System's Architectural Expressions in Denpasar-Bali, Indonesia
Principal Investigator:	Dimas Wicaksono
Parent Study ID:	STUDY00000513
Transaction ID:	STUDY00000513
Funding Source:	None
IND, IDE, or HDE:	None
Documents Reviewed:	<ul style="list-style-type: none"> • Indonesian_Information sheet recruitment for Experts.pdf, Category: Recruitment Materials; • Indonesian_Information_sheet_recruitment_08-22.pdf, Category: Recruitment Materials; • Indonesian_informed consent_Experts_08-22.pdf, Category: Consent Form; • Indonesian_informed_consent_homeowners_08-22.pdf, Category: Consent Form; • Indonesian_Interview list of question_Experts_08-22.pdf, Category: Data Collection Materials; • Indonesian_Interview list of question_homeowners_08-22.pdf, Category: Data Collection Materials; • Indonesian_Recruitment email for experts_08-22.pdf, Category: Recruitment Materials; • Indonesian_Recruitment email for house owners_08-22.pdf, Category: Recruitment Materials; • Information sheet recruitment for experts, Category: Recruitment Materials; • Information sheet recruitment for house owners, Category: Recruitment Materials;



	<ul style="list-style-type: none"> • Informed consent for experts, Category: Consent Form; • Informed Consent for house owners, Category: Consent Form; • Interview guide for experts participants, Category: Data Collection Materials; • Interview list of question for house owners, Category: Data Collection Materials; • Recruitment email for experts, Category: Recruitment Materials; • Recruitment email for house owners, Category: Recruitment Materials; • Research Plan_Dimas Wicaksono, Category: IRB Protocol;
Approval Date:	8/12/2022
Effective Date:	8/15/2022
Expiration Date:	8/11/2023

For this research, the following determinations have been made:

- This study has been reviewed under the 2018 Common Rule. The study has been determined to be no greater than minimal risk and to qualify for expedited review as per Title 45 CFR 46.110 under Categories (6) Voice, video, digital, or image recordings, (7)(a) Behavioral research, (7)(b) Social science methods.
 - o A regulatory continuing review is not required for this study. An institutional approval period has been established based on your application materials. If you anticipate the research will continue beyond the approval period, you must submit a Continuing Review Application at least 45-days days prior to the expiration date.

The research is approved to be conducted as described in the approved protocol using the approved materials. Approved materials can be accessed in the protocol workspace in the IRB module of the research administration portal (RAP).

It is your responsibility to ensure modifications are submitted when required and approval secured before implementing changes to the protocol.

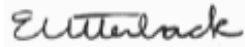
A closure report must be submitted once human subject research activities are complete. Failure to maintain current approval or properly close the protocol constitutes non-compliance.

With the submission of your request, you agreed to uphold the responsibilities of the Principal Investigator and have agreed to follow the requirements listed in the Investigator Manual (HRP-103), which can be found by navigating to the IRB Library within the IRB module of the RAP.

If you have any questions regarding your protocol or the review process, please contact Research Compliance Services at ResearchCompliance@uoregon.edu or (541)346-2510. The University of Oregon and Research Compliance Services appreciate your commitment to the ethical and responsible conduct of research with human subjects.

Please consider completing our [user satisfaction survey](#). It only takes a few minutes, and we would like to hear about your experience working with our office!

Sincerely,



Lizzy Utterback
Research Compliance Administrator
on behalf of the Committee for Protection of Human Subjects

B. SAMPLE OF INTERVIEWS

a. Expert – Prof. Ayu Siwalatri

In-person Interview | Denpasar, August 2022.

Can you explain about the application of the Kaja Kangin in Tabanan area?

For houses in the Tabanan area, the application of the kaja kangin is different.

Tabanan people decide the location of their house temple based on this sequence of priorities: (1) The house temple should be located on the side of the street, (2) The house temple should be in the southern or eastern corner of the site. In the northeast direction, the kaja kangin would be the most preferable placement.

If the road is on the south of the site, or if the site faces south direction, the Tabanan people will place the house temple in the front of the site, on the eastern corner. The northern part of the site is located on the back side of the house, which is not preferable. If the owner has the opportunity to place the house temple in the Kaja Kangin, he will place the house temple in the kaja kangin corner.

I am interested in the process of house densification. The case study Tabanan house houses more than 20 families, so it is a dense rural house.

My husband's origin house also houses 18 families. When I was a newlywed, the house houses 18 families. So, each time the next generation has children, the land will be divided for the children, particularly for the male. Within this one clan group, one site will be divided for the next generation. It originates as a house for a couple. This couple will later provide a site for their children. The male children. The child will become an adult and be married. They will also provide sites for their children to build a house within the same site. The land division will continue until there is no space left.

In other place, it may be different. I saw a case in Kastala village. A clan will only build one house temple on their site. As the village's population increases, the site may be divided, and a part of the land could be given to another family, disregarding their familial relationship. This could happen because the Desa adat owns the land. Any members of the Desa adat could use the land and build their house, but may not own the land. Population increases,

and the land that is divided may be a big piece of land so that the Desa adat could give a piece of this land to other family.

The case studies in Desa Pangsang and Desa Beraban also mentioned that their land is owned by the Desa Adat.

However, the case that I mentioned, where a piece of land is given to another family is only found in Kastala village. I did my research in Kastala, and I found that a site has more than one house temple. They explained that two menajan/ house temples exist because two families are living in one site, and these families do not related by blood, they are not having a kinship. These two families live in a site with one entrance. The land division does not necessarily produce a new entrance. The site is divided by a boundary but not a wall. The boundary is only a mark on the ground.

Although it is inhabited by more than one family, the space is unified and has a strong continuity. The main sign that the site houses more than one clan is the availability of the two merajan/ house temple. The elements within the house temple are varied in each locus. House temples from different villages may consist of different elements.

A house temple in Tenganan village and a house temple in Kastala village may have a different composition of pelinggih. Still, the most important thing is that both are the family's worship place. I am a Balinese, and I realize that Bali has so many variants. Sometimes I am still surprised because of the differences.

You mentioned that different villages may have different rules, and the respondents mentioned a similar thing. I assume that each village may have a different understanding of the concept and rules. What do you think about this?

Yes, because there was no (or little) written source. There was no culture of writing. The meaning may differ, but they can do the same rituals regardless of the meanings. I feel that each family provided different explanations about their rituals and ceremonies. But they collectively do the same rituals. They do the same rituals, although each community may have different meanings of the rituals.

They do that, and the Balinese Hindu makes the differences possible. In the moslem world, the rules are written and clear, so you follow the same document. Islam has guidance for the

ones that are allowed and the ones that are not allowed. Not in Bali. Can we do this? The answer is “yes, you can.” Can we do that? The answer would also be “Yes, you also can.” This is the cause of the variations. Each situation is different because of the economic situation, size of their land, etc. This difference provides room for personalization, a room to create a different solution to their problems. Regarding space, I could personalize my room/space and create a specific solution to my problem. and this is allowed in Bali. Life in a city is complex, and we cannot reduce the complexity to one solution.

At architecture schools, it seems that there are generalizations regarding Balinese architecture.

They only teach the mainstream architecture of Bali. In general, the basic principles are valid. However, as we visit a specific locus, in a specific time, it would be different. The Bali that we see today began in the 9th century. Before that, we could consider Bali as prehistoric.

The written artifact that is found shows this period. after the settlement, written documents from 800-1200 show that Java and Bali live alongside very well, and each region has its own tradition. There was no political power competition. There are not much of cultural influences between the two regions. After 1300, Gajahmada and Majapahit kingdoms came to Bali, and therefore the principles of Balinese Hindu were introduced.

Mpu Kuturan is the figure who introduced the simplification of various indigenous beliefs: Sambu, Barawa, and nine other beliefs. It was too complex, so Mpu Kuturan simplified them. The worship place is simplified, the village temples are simplified, and the Balinese Hindu rules were made. It was in the 11th century.

However, in the 12th century, the Warmadewa dynasty disappeared, some possibilities are: (1) the eruption of Mount Batur wiped out the Warmadewa Kingdom. Some experts guessed that the Kingdom is located in the northern part of Bali because the written document mentioned that Mount Batur was the highest mountain in Bali, although the big eruption reduced the height, and it is not the highest mountain anymore. However, this fact does not confirm the location of the Warmadewa Kingdom because, in the southern part of Bali, there are some stone inscriptions regarding the Warmadewa Kingdom. The northern and southern part of Bali is divided by the mountainous range that prevents mobility; thus, the

first opinion is doubted. This caused a missing link, almost a century without sufficient written records, from 1230 to 1300. After 1300, the influence of Majapahit developed in the southern part of Bali. So, if we come to villages that were developed before 1300 (for example, Julah, Bedawa, and Tenganan) they will be different because there were no Javanese influence yet. No simplification. Let's say there was Warmadewa Kingdom, there should be a rule that governs the villages, which is not visible. These villages seem independently have their own principles. After the arrival of Gajahmada and Majapahit, these differences are structured and simplified. In Bali aga village, each village may have a different principle. My research is also in Julah and Sidatapa villages. Both are Bali Aga villages that are located in one region. However, both villages have many differences. In Julah village, the community is more important so that a house is not inherited. When somebody gets married, he or she shall move to other area, so densification is not existed in this village. as the parent passes away, the house will be demolished. In Tenganan village, they have a culture of endogamy. Tenganan people shall marry another Tenganan people. If a person marries people from outside the village, he or she will be expelled from the village. The person will lose the rights that he or she has as a Tenganan member. Hence, the population growth is lower because there is no external addition. This limitation creates such a situation that a person may not have descendants. In this case, the will pass down the house to their niece or other family members. They are bilineal, hybrid, that every individual is a member of his or her mother's matrilineage and father's patrilineage. The way the inheritance works may have influences on the environment. For example, because they know that the descendants will not inherit the house and that the house will be demolished, they do not have any intentions of building a luxurious house, even though they have the financial power to do so. "I will not pass down this house to my children, so I do not have the need to build more than what I need." It also causes the financial gap between residents to be not so visible. People can only inherit money and not houses and land. Kastala village has similar rules, if a family does not have any descendants and family, the family shall return the house and the land to the Desa Adat. Looking at this system, we can see its environmental consequences.

For a study on Balinese houses, choosing small sites would be good because they will have problems with their architecture. If a Balinese want to apply the traditional principles to the house, they may need a 400sqm to 500sqm land. 100 sqm of land will create problems. If I had two children, the site would feel so small. Either they will have a very crowded house, or they will have to build their house into a two-story house. It has implications for the location of their house temple. The solution may be varied because people may create different solutions to their problems. The house temple's location depends on the location of the site. Different locations of the site will create different demands, whether the site is located on the north, south, east, or west side of the street. We will find variations based on these differences.

If the house is in the Tabanan region or belongs to a person from Tabanan, we may see that the position of the street influences the location of the house temple. You would be interested to see how a house located in a certain size and location of a site produces various types of problem-solving. You should probably have more than one sample from the rural villages, to compare the rules and principles in a Desa Adat. Do people from the same village produce a similar spatial solution to their architectural problems?

The relative position of the site to the street will have a strong influence. The position of the site and the street will influence people's decision to place their house temples. So, the factors are the street's position and the site's cardinal orientation. Kaja (Balinese north) is not always pointing to the north. In Sidatapa, the Kaja is the east. In Sidatapa, when their ancestors decide the location of the village, they intentionally choose a location that has a higher ground on the eastern side of the village. They matched their Kaja, higher elevation, and the east direction. This is because they originated from Trunyan, a location in the Mount Batur area. Mount Batur is located in the east direction of their origin village. Hence, their Kaja is in the east. As they migrated from Trunyan and looked for a location for their new village, they chose a location that was similar to their origin village. Hence, the Sidatapa has a similar situation to Trunyan, the origin village. There are no written records regarding their origin, but there are folklores that mention their origin was in the Mount Batur area. Moreover, their language has similarities to Trunyan language.

The first thing the Balinese would do when building the house is to identify the orientations and cardinal directions. There was a story about Geertz, an American researcher that did

research about Bali. He invited a Balinese to come to the United States, and the Balinese was confused because the sun was not rising from the direction that he considered as “east.”

When I arrived in Eugene, Oregon, I was shocked because the qibla (the direction of the Muslim’s prayers) was pointing to the north, not the west. It creates some kind of disorientation.

Yes, that is why when a community agreed to stay in one place, they will agree to choose some condition that reflects their place of origin. Nowadays, it is less possible because there are many limitations. Cardinal orientation is very important for Balinese. However, modern Balinese may experience more challenges. I am from Buleleng area. In Buleleng, the Kaja is in the south, because the mountains are in the south. The situation of my family’s house site prevents my house entrance from being located in the Nista area of the site. The nista part of the site is a sloping ground, so the entrance must be located in the Utama part. In other case, I own a house that is built by a developer. The entrance is located in the Utama area. These situations prevent me from building my family temple or shrines on the utama part of the site, so that I have to build my family temple or shrines on another part of the site. In your study, you may need to look for the considerations when people build their houses, familial temples, and shrines. What is his first decision? He has a small piece of land and may need a larger floor area. Where is the location of the site? Which direction does the site face? This person may experience challenges, and conditions that are very different from his origin house that require personalization.

In Lumintang case study, the family temple is placed on the third floor, in the Kaja-Kangin orientation. He chose the worship place to be located on the third floor, at the back part of the site, because of the Kaja-Kangin.

In the Pondok Arjuna case study, he mentioned the rituals that he does when he accesses his house.

The Balinese believe that negative energy may follow a person to his or her house, particularly if he or she visited a cemetery or a place far from home. The kitchen has a fire element. Fire burns, so the purification is through fire elements, or through water elements. However, because in most cases it is not possible to throw the water into the kitchen’s roof,

this ritual is not done anymore. People would wash in the kitchen. The other alternative is that a person could clean up or wash before they enter the house. The traditional Balinese house principles facilitate the Balinese traditional rituals and ceremonies.

If a house is located on the west of the street, the family temple could be located in the *kajakangin*, on the part of the site that is adjacent to the street. However, a Balinese should traditionally enter a house from the kitchen, so he may arrange his circulation through the kitchen. The center orientation of a Balinese house is at the *natah*. To reach this *natah*, a person will always pass the kitchen. In my village, I could still see this pattern. It is still obvious in many Balinese houses. But nowadays many traditional values are reduced in practice.

How do the Balinese feel about these reductions in values? Does it happen because the traditional principles are impractical?

Some rules are illogical. For example, is it true that negative energy could follow us? Balinese would still have some fear when they arrived home from a funeral or cemetery, but they no longer worry if they come from ordinary places. The Balinese made many adjustments to the rituals. Let me use a ceremony as an example. *Ngaben*, the funeral ceremony, used to be a communal event. If my parent passes away, the funeral involves all village members. The problem is that I no longer live in the village and have not made a good contribution to my home village. This could be a problem because other members of the village could consider that I have a big debt to the village, because of my lack of contribution. They could refuse to provide a decent funeral for my parents.

The ceremonies that involve Banjar will be costly because there may be a need for food or other supplies. Nowadays, commodification is common. Everything comes with a price. Some ways that simplify some rituals or reduce the costs are: (1) crematoriums are now available, and some people choose not to involve the village members, and only involve family members, so the funeral could be more simple and inexpensive; (2) Conduct mass ceremony to reduce the cost; (3) Mechanical equipment also reduce the cost of traditional rituals.

Rituals and ceremonies also adjust themselves to conditions. During the pandemic, because people cannot carry the corpse by walking, they use a car to carry the body and continue the

ritual. As we see in these examples, the modifications are acceptable. It means the Balinese tradition is not frozen in the past but keeps adapting to the present situation. Now it could be modernized, facilitate people's movements, and limitation of time. People are aware of these problems, so the solutions are not only created at the level of families but also at the village and government levels. Hence, tradition is not a burden because many things are simplified. Outsiders may see that rituals are still conducted and that there is a continuity of traditional ceremonies in Bali. However, as we observe the details, we would notice that many things have changed.

Because of my positionality as an outsider, I notice the differences. There are generalizations of the principles that do not apply to some contexts.

What about undagi? Are they actively involved in the creation of Balinese houses?

If a person would like to hire an undagi to build his house, it is allowed. If a person would not hire an undagi for his house, it is also allowed. Both choices come with consequences. Undagi will do his obligation. Are you prepared to accept undagi's suggestions? If you are unwilling to accept undagi's recommendation, you can choose not to hire the undagi. It is not about affordability, but it is about other consequences, because it is related to undagi's rights and obligations, because the undagi has the responsibility to do his work. If the undagi does not do his work responsibly, the undagi made a mistake and will receive the consequences. It is not easy to be an undagi.

Which institutions produce Undagis?

Undagi is produced through an apprenticeship with an undagi.

Who can give the label "undagi"? Can a person that has experienced the apprenticeship and gotten through the necessary rituals call himself an undagi?

He can. It is his responsibility. He has studied and "graduated" through a religious ritual. However, it is not that easy, because once you declare yourself an undagi, you have the responsibility to carry out the obligation; the Dharma. Is he ready for that? Balinese believe that if that person is not ready and does not carry out the obligations properly, he will suffer the consequences; he could get involved in conflicts or get sick.

During the process of building a house, a house owner will have responsibilities, and the undagi also has responsibilities. The responsibilities have consequences.

As a house owner, does hiring an undagi reduce my risk? I assume that because the undagi may apply the correct religious principles, the owner of the house may be satisfied because he has fulfilled the traditional principles.

No, I have a very different opinion. I would say that if a house owner does not hire an undagi, it means that he or she has reduced the risk. This opinion is because the owner took the responsibility, and no undagi is responsible for the house. Fewer people are responsible. Moreover, an undagi has his own pattern, and his pattern does not necessarily fit the clients'.

Considering the various patterns that we can observe in different villages, will the undagi facilitate these differences? or, will he only work based on the pattern that he knows? Considering the various rules, does an undagi only operates in a limited region?

The book Asta Kosala Kosali, the source of the principles, has variants. There are different versions of the book, in different regions in Bali. The book in Tabanan, Gianyar, Klungkung, Karangasem, have differences. That means that an undagi who learns the principles from the Tabanan's Asta Kosala Kosali book may have different perceptions from other undagis that learn from different books. Even though, in general, the principles are similar but they may have varieties of details. If I, a resident of Denpasar, want to hire an Undagi from Tabanan, it is allowed. In the process, there will be negotiation, because he will bring the Tabanan values with him and some details may not fit my belief. This difference will generate negotiations.

The negotiation means that the owner of the house may tolerate some patterns that do not fit him, and on the other hand, the undagi will need to match his understanding to the owner's perceptions, and the localities.

A friend of mine built a house. Because he is an architect, he decided not to hire an undagi. After some time, he felt that his family experienced unusual conflicts, so he brought a priest to his house. Evidently, he incorrectly placed and oriented a

pelinggih/ shrine in his front yard, so he was asked to rebuild the shrine at a different location, facing a different cardinal direction. Afterward, the enduring issues and conflicts were resolved.

Pelinggih Penunggun Karang is relatively small. It stands alone and does not have a significant visual effect to the landscape, but it has a significant influence on the family's life. It is believed that its location and orientation may influence the energy within the site. It can prevent negative energy from entering the house. Penunggun Karang is the guardian. It guards the house and the family. An incorrect position and orientation are believed to compromise its ability to block negative energy. It refuses to guard the house, so conflict may rise, or the astral beings that supposedly guard us turn against us. It is a part of our negotiation with the beings from the underworld.

I live in Kenyeri and my house is located in an intersection. The intersection is not a physical intersection, but rather a spiritual intersection. The local community believes that it is true. Hence, if an indigo person, who is sensitive to energy, comes, he or she mentions that my house is full of astral beings.

Can you describe any physical characters that trigger this spiritual intersection? For example, natural elements, lights and shadows, or else?

It is an intersection, and local people would mention that it is known as a spiritual route, a place where energy passes, and cannot be blocked. If you block this energy flow, you will have problems. An indigo mentioned that my house is a rendezvous. A place where the energies pass and stop by.

Does it influence you or your family's life? Or is it only local stories?

It influences me. I understand and accept that condition. This is about how we manage energy.

My house is located in a location that is considered Karang Panes. It was built for my brother, but my brother does not want to stay there. Once, our family rent the property, but the tenant felt disturbed by this energy, so he built an additional pelinggih on the front yard. One day, my brother visited a Balian. A Balian is a Shaman, and I was the one who drive him there. I only take my brother. He was the one that want to visit the Shaman. Nevertheless, as

the Shaman saw me, he asked where I live, and specifically asked about a Pelinggih in my front yard. He asked me whether I know who sits on a Pelinggih in my front yard. I did not know because the tenant of the house built the Pelinggih.

The Shaman described about astral beings and he mentioned that my house is located in the place where energy passes. He mentioned this without any background knowledge about me or my house. This kind of conversation occurs not only once or twice but multiple times with different Shamans.

There are parts of my interviews that have no logical explanation. In these cases, the interviewees describe the other realms and energy as the cause.

My brother converted to Islam, so I asked him about the differences between Islam and Hinduism, regarding the underworld. He described that in Islam, people chase away or repel these beings. In Balinese Hinduism, we do not do that. We keep and nurture them. The beings from the underworld could stay anywhere they wanted to. We live alongside. "I live in my world, and you live in yours, and let us not disturb each other."

A priest mentioned about the underworld. I was asking him about the position of our canang/ offering. Why we put some canang on the ground and some other on raised platforms. He explains three sacred beings: the gods, the ancestors, and the beings from the underworld, and there are levels of them.

Yes, so we make friends with the beings from the underworld, and we use them to guard our house. We use them to keep us safe.

Regarding the distance a Balinese would travel to deliver their offerings, is there any maximum distance? How far should a Balinese walk to pelinggih in the public spaces? Is it based on a personal decision, or is there any guidance?

It is up to every Balinese. If you feel that you have to give offerings to certain pelinggih, you can do that, regardless of the distance. Canang/ offering is yadnya. Yadnya's definition is a sincere offering. It shall be genuine and heartfelt. If you want, you can do it; if you do not, that is alright.

At my house, during the religious holidays, many people put offerings at the intersection. There would be a pile of offerings in front of my house. For example, during the sixth month, some would come and sacrifice animals in front of my house. Balinese Hindus believe that during the sixth month, astral beings wander around and ask for sacrifice. The place becomes lively because people nurture the energy. Balinese would say that the place is “tenget”, or creepy. Because I live there, I know that many accidents are happening in the intersection, and I am sure the energy plays a huge role in the events. Even though we cannot see the energy, some signs signify the facts.

Some time ago, at 1 am, a car crashed onto my fence wall. The car was speeding so that my fence collapsed. The driver mentioned that he was not drunk. Instead, he saw something and swerved. His car crashed onto my fence, and the fence collapsed.

We could assume that the person who put an offering in a location is somehow connected spiritually to the location. Each person may have different details about their attachment to a *pelelinggih*, or a sacred location. There are numerous factors and possibilities that could attach a person to a sacred place.

So, are you saying that this distance cannot be measured?

No, you cannot measure the distance. Instead, you have to look at the stories of their past. Hence, reading the syntax structure may not indicate the tendencies because each case is based on its situation. It may be challenging to be quantified, and there may be no clear physical characteristics of the locations. However, it is possible for you to create a generalization. If there is something in a place, there is some energy from the underworld. For example, if we wonder about the locational reason for a *pelelinggih*, we may infer that such a location has a historical background that may be aligned with local folklore.

We can also trace the possibilities by looking at the name of the places. Some names indicate that a place is haunted.

When a group of people agreed to dwell in a place, they established their orientation points. They decided the locations of the worship place, et cetera. During the process of establishing the worship locations, they may be influenced by a place’s character. The Place’s sacred character could be anything; smoke, taste, smell, fire, or other things.

They will agree to possible places of the village temple, cemetery, and other essential components. Having said that, these decisions were made several centuries ago, and some characteristics that acted as the reasons may have disappeared. We can only see the physical pieces of evidence that indicate some possibilities. From this point, we could begin our effort to interpret the reasonings.

How to explain the reasoning behind a pile of offerings at a road intersection? Why do some intersections have more offerings than others?

This issue is similar to an intersection nearby my house. It is not a crowded intersection, but more people put offerings at this location. Sometimes the name of a place also indicates that the place is religiously important. This kind of place usually has its local stories or folklore. Some people may say that they sense psychic activities at that place. At night, I hear some noises coming from the alley next to my house, but no one was there. There are some things that cannot be explained. You can identify some physical characteristics, but you need to connect the physical element to the local stories and meaning. We cannot use a universal spatial theory. An intersection may seem more significant than other intersections, but spiritual activities may indicate otherwise.

The signs of how significant a sacred place exists in such important places. A checkered fabric that covers a big tree provides a message that the tree is sacred. Another big tree may not have this fabric, and it indicates the level of the sacredness of the tree. So, we cannot read the Balinese space through a universal spatial theory.

It may mean that universal spatial theory and Balinese spatial theory are different because the Balinese consider the underworld. The western spatial theory is related to the middle world, the world of humans. In Balinese spatial theory, we may see the influence of the underworld, middle, and upper worlds.

In research in Bali, we need to be careful and sensitive to the local culture and attitude.

When I did my research in a Bali Aga community, I did not realize that they use space differently. During the ritual, I noticed that everyone sits on the floor, while I sit on a higher platform, at the base of a shrine. A local whispered that I should sit on the floor. "You are lucky that you are reminded to sit on the floor. We are not allowed to sit there." In my origin

village, it is allowed to sit at the base of the shrine. Sometimes we forgot to be sensitive to local culture.

Some communities in Bali have this culture, that they may not forbid someone from doing something. When a person does something, this person is responsible for the consequences. I am not the one responsible for the other person's actions, so other people could do what he or she wants. In general, the Balinese agree with this. We rarely forbid someone from doing something.

When we translate this to architecture, Flexibility is allowed, but you may need to accept the consequences. Hence, we could see many variants of Balinese architecture. People could place their *sanggah*, *merajan*, or house temple on the third floor, second floor, or on the ground floor. In the past, Balinese people have big sites. Currently, it is different. The wide space that the Balinese had in the past is a luxury in the present. It is difficult nowadays. For a Balinese that has 1 are (100 sqm) of land, he or she will have difficulties in placing the worship place. The possibilities are placing the worship place on the upper floor or placing the worship place at a less ideal location, not in the *kaja-kangin* direction. He or she may choose between *kaja* or *kangin*, and probably in the front yard, depending on the site's position.

At first, only people from Tabanan make the front yard a priority, and not necessarily the *kaja-kangin* direction. Nowadays, the limited option may force a Balinese from another region to place the worship place in a similar place. Thus, there is a possibility for a person to adopt some values from another Balinese region.

The choice of material also changed. In the past, the material used in a building may be related to the location of the building. The badung region is dominated by red bricks. Gianyar region combines red brick and paras stone. Kapal region only uses paras stone. The local architecture may reflect the local resources and availability of materials. Nowadays, Balinese houses could use cladding that is produced abroad or stones from other islands. Ornament and styles also differ from one region to another. There used to be clear styles of Gianyar region, Badung, Denpasar, Klungkung. These varieties of styles and ornament are also depending on the materials that are used in the buildings. The material options were limited in the past. It could be because of the limited mobility, the availability of local resources, et cetera. Currently, these limitations no longer exist. Hence, the building material

is no longer a part of local identity. In Kapal region, there were also relations between the building material and caste, or a person's political position. Red brick was only allowed for the king's family, and ordinary people may only use paras stones.

In one of my study cases in Banjar Pasti, the house was built in 1930 and has a dutch or colonial style house. Is this common?

We shall assume that the house belongs to a wealthy family. Within the period of 1930-1960, the European colonial architecture style was in. The European style was used in Balinese houses. I would also assume that this style only applied in their Bale Dauh; their bedrooms. The Bale Dangin or the Bale adat would still retain the Balinese traditional style. The style was popular in Bali during that period, and if we trace the owner of the house, I am sure that this was a wealthy family so they could adopt this style.

I assume that the style is applied to the Bale Dauh because the adaptation of external style is only possible in some buildings, particularly the Bale Dauh. The reason is that Bale Dauh is for sleeping space. It is the most flexible, the one that easily changed. From this case, we could see that the flexibility in a Balinese house has limitations.

So, can we conclude that the flexibility is not only caused by limitations (for example financial or spatial), but also exists in the case of a rural house that is owned by a wealthy family in a wide building site?

Yes, during that period, a Dutch colonial style was considered unique and contemporary, and the building style was used as an expression of wealth. Nonetheless, the compound may retain the Balinese order of traditional houses. the position of each building may follow the religious traditional building arrangements. In Bali, we could see a number of houses that are built in the European style. In general, the style is applied in their bale dauh.

From such an example, we can conclude that parts of the houses that have less or no spiritual meaning, may be modified. Meanwhile, the parts of the house that do have spiritual meaning are less likely to change.

The background stories about the reasons for the style are not passed down to younger generations, so the current owner has no knowledge regarding the reasons behind the Dutch colonial style.

The parts of the Balinese house that has spiritual values have strong persistence and are unchanged. Is it true to say that the container of the memory is the part that contains spiritual values?

Not necessarily. The persistence and the modification reflect the needs of the user of the house. It is true that parts of the house that have spiritual values may have better treatment, compared to the ones that do not carry spiritual values. For example, the *merajan* and *sanggah* may have better treatment. However, the main reason for the persistence of *Bale adat* is because it plays a significant role in the Balinese daily life. The Balinese need the *Bale Adat*. The ceremonies of Marriage, and death, requires the *Bale Adat*.

The problem is, what would happen to a Balinese family that only has a small site for their house and cannot accommodate the *Bale Adat*? In urban areas, a person may only have a small house on a small site. In this case, he would build a temporary structure for a ceremony. Usually, they would use bamboo as the material for this temporary structure. In extreme cases where the house and the site are so dense that he could not build a temporary structure, he would arrange a room in his house, decorated with some attributes to convert the room into a sacred space, temporarily.

The *Bale adat* is built for sacred/ spiritual activities. The Balinese people still build this structure because they still need this structure to accommodate their sacred ceremonies. If I live in a very small house, I will arrange some attributes in a room and convert the room into a sacred space. These temporary conversions have been practiced in the *Bali kuno* (old Bali). In *Bali aga* communities, because they have small houses that accommodate all their daily activities, they would convert a space in their house into a sacred space by adding some attributes. The attributes include the *wastra*, the sacred fabrics. The attributes are decorative elements: sacred fabrics, and woven coconut leaves. The room would be converted to its original function after the ceremony ends. Although a *pelangkiran* is small and lightweight, it is not movable. The Balinese keep the house parts in their original form, not because the Balinese want them, but because they need them in their daily life. These needs are transferred from one generation to another, so the Balinese keep the house parts that accommodate these needs.

Nowadays, we could hardly find the jineng in Balinese houses. Jineng is the granary. This phenomenon occurs because the Balinese does not have rice anymore. Different occupations and methods in handling the rice are the reasons why the granary is not built anymore. The disappearance of a component reflects the changing needs of the people. Many Balinese still have their rice fields, but the harvest comes to their house in a different form. It is no longer in the type of harvest that can be stored for a long period of time. In most cases, the modernization of the harvesting method enables the farmer to sell their harvest directly in the rice fields, so they do not need the jineng anymore in their houses. After the harvest, the farmer only needs to bring a bunch of paddies to symbolize the harvest and they do not need a special structure to store this symbol of harvest. The bunch of paddies as the symbol of harvest is placed at the seat of Dewi Sri, the rice goddess. If a Balinese does not have a granary, he would have another place as the seat of Dewi Sri. It is important to see if a house still has a jineng. We should see whether they still keep their rice in the granary. Even though the rice field is still operating, the type of rice is different, and the mode of the economy also different. My house still has a jineng, but it is not used to store the rice anymore, and is only used as a place for Dewi Sri. Looking at this example, we should think about the definition. The Jineng means a place to store rice. The sacred one is the symbol that is attached to the Jineng.

In Kastala, they do not have granaries. They are a group of people that migrated from Tenganan because of political issues. They were given a rice field, but they were required to share the harvest with Tenganan. Because of this system, they never had plenty of rice to be stored in a jineng. Hence, they do not need a jineng. The explanation of the physical phenomenon must be accompanied by the interview result. Both sacred and profane activities are accommodated by space. If an activity does not exist anymore, the space may be changed.

If someone mentions that traditional architecture does not change, it is not accurate. Architecture changes because human needs are always changing. How far the changes are defined by the change of the people's needs.

Should a Balinese maintain the components of traditional Balinese houses, for the sake of heritage?

In my opinion, it would be challenging. In Julah, I asked, “may I stay there if I have money? I can buy a piece of land and build a house.” Their answer was “yes, you can.” however, they continue their answer with a condition that I have to be a Julah person. I have to carry on the Julah tradition and do my daily activities like a local, Julah person. People are forced to keep their way of life, and this is very difficult nowadays. Their strategy to keep their artifact of tradition is by keeping their way of life. Therefore, there is no need to modify the container because the content is not changing.

The famous traditional village that is known for its ability to keep its traditional houses is using a clear strategy: keeping its way of life and tradition. The focus of their conservation is not the space, the physical components, or the house, but the tradition. The activities, the way of life. The newcomers shall obey the local rules and traditions. In many other villages, this cannot be forced and changes are inevitable.

Tenganan requires their children to study in local schools to learn about their local language, calendar, tradition, customs, and other local knowledge. If a person refuses this condition, this person should leave the village. Kastala village is a village that receives the people that is expelled from Tenganan village. Some possible violations that make them expelled are refusing to marry Tenganan village members and refusing to do their traditional obligation. These expelled village members are no longer entitled to the Tenganan village’s resources. Tenganan village is a wealthy village, and the village provides rewards to its village members. The positive is that the village can maintain its culture, but some individual rights are compromised. These expelled people are still attached to the original village temple system.

What do you think regarding erasures of architectural expression in urban houses?

We should be careful with the idea of erasures. The traditional expressions are degrading, but it has not been erased. It adapts. If we link the architectural adaptation with the belief system, the architecture shall be carefully observed. Architecture is not completely produced by the belief system. When we do the architectural observation, we will observe the activities, needs, and changes, that influence the shape, form, and detail in architectural works.

If the architectural expression is degrading, does it mean that the Balinese belief system is degrading? Not necessarily. The physical components may be reduced while the Balinese maintain their religious belief.

The architectural expression degraded, reduced, or adapt, not necessarily because of the degradation of the belief system. Modernization and technological advancement may simplify the rituals, but the belief system is still there.

Rituals and ceremonies still have the same meaning and significance, but architecturally may be expressed differently, as long the simplified architecture can still accommodate the ritual and ceremony. The shape, form, and details may be different, but it could still be a container of the same events within the belief system.

Architecture should be seen from the architectural perspective, and we should be careful in using the words culture and belief. The Balinese Hindu belief system is the same in different times and places in Bali. However, the rituals, the process, and the architectural expressions of the belief system may be varied from one place to another.

The content is identical, but the expression may be varied.

In general, in the Balinese way of life, everything is allowed but you have to face the consequences of your decision. The definition of privacy for Balinese is also different. Unlike the Western world that protect privacy, Balinese like to be photographed and exposed.

Does the government control the Floor Area Ratio?

To build a new house, we should submit the building permit application. The Government will evaluate the building plan. During the construction process, they will send someone to look at the building site. However, after this visit, there is no further control. The final product could be different from the plan. Some common violations are regarding the mandatory Balinese identity in the building, floor area ratio, and the swimming pool. I know some in which they construct the swimming pool later at the end of the building construction process, to avoid inspection. They do this because the permit for a swimming pool is complicated. Having said that, buildings that are built before the 1960s, buildings in villages, and some other buildings do not have building permits.

Do we have the data regarding the boundaries of traditional villages?

We do have it. Each village has it, particularly the Desa Dinas. However, the Desa Adat may have less accurate data. The Desa Dinas has more accessible data, while the Desa Adat is more difficult. In addition, the boundaries of Desa Adat and Desa Dinas sometimes have differences. Once a group of people agreed to build their village, they identify their village's boundaries. These boundaries are not lines on the maps, but spatial elements. Some boundaries are in the form of fields called Karang Kembang, forests, rice fields, or other natural elements, not a line. The unclear boundaries sometimes created conflict among villages. When the villages formed, a long time ago, they do not have this conflict because land and space are plenty. Nowadays, every centimeter has to be certified and formalized. In the '70s when the Indonesian government created the agrarian law, traditional villages are struggling with land certification because they have the lands that belong to them informally; the tanah Desa.

It is difficult to identify the boundaries of the Desa Adat, because some do not have many visual markers of their boundaries, and some Desa Adat have a very big area. For the Desa Adat which has many Banjar, the village members have less obligation to organize rituals and ceremonies in the local temples. This could happen because each banjar will take turns in conducting the rituals and ceremonies in their local temples.

What facilities or elements are required in a Banjar adat?

It is a matter of management. A Desa Adat could have one Banjar, or many Banjars. A Desa Adat that has a big population and larger area would divide itself into a number of Banjar Adats, to increase the efficiency of management. A Banjar would build a Bale Banjar to accommodate local activities. It consists of some essential elements such as Bale Kulkul. The Bale Kulkul has a wooden noise maker to communicate codes of information to the Banjar members through sounds. If a Desa Adat grew to have more population, it is also possible for the village to create a new Banjar Adat.

Besides the Tri Kayangan temples, what other temples are available, and what are their functions?

The Tri Kayangan temples act as the binder of the village members. All village members have rights and obligations to the Tri Kayangan temples. The system was designed by Mpu Kuturan. One Traditional village must have Tri Kayangan temples and a cemetery. Despite each of the Tri Kayangan temples is dedicated to a different God: Brahma, Wisnu, and Siwa, the Tri Kayangan temples function as the binder of the village.

Other temples are (2) Temples that are related to the professions. Wetland farmers will have a Pura Subak, and traders will have Pura Melanting. This temple could be located outside of the village. (2) Clan temples (Pura Dadia or Kawitan) that are related to Kinship. A Desa Adat may consist of more than one clan and it would be reflected in the number of Pura Kawitan. (3) Temples built for specific spiritual reasons. Spiritual reasonings and historical reasons sometimes create a need for other temples in an area. During the introduction of the Tri Kayangan temples, the historical records mentioned that some previous village temples were changed, and adapted to the Tri Kayangan temple system.

A Desa Adat must have a set of Tri Kayangan temples, and other temples are built according to the village members' needs. Each temple would have its own odalan/ birthday that is celebrated by the members of the temple. Currently, there are many Balinese that are trying to trace back their family history and looking for their origin. Because of war and their ancestor's movements, they lost track of their ancestors.

How would you explain the process of handing down the tradition?

Religious rituals in Bali also have social functions, so religious rituals may also be related to a crowd or activities in the local communal spaces. Perang Pandan activity in Tenganan does not necessarily have a deep religious meaning to the activity in the temples. The activity in the temple is about bringing offerings to the Gods, but then it is continued with events that are more socially oriented. Each person may have a different interpretation of the details of the activity and do not necessarily agree about the religious reason. Events are periodically conducted and celebrated. Each member of the village comes back to their place of origin, and the transfer of knowledge is happening through activities, routines, rituals, and celebrations that refer to the past. The distance of a house to the origin place provides challenges to the handing down of this knowledge.

In Balinese Hindu, there was no routine sermon/ preaching. Dharma Wacana, preaching of religious knowledge is a relatively new routine for the Balinese Hindu, in which it delivers general knowledge about the religion. Each Desa Adat could have specific local traditions, and this knowledge may be more difficult to transfer. Tenganan village delivers the knowledge in the primary school, and other villages could refer to Tenganan village regarding this method.

In Balinese culture, what are the mediums to transfer traditional knowledge?

In the past, everyone still stays in their village, so the transfer of knowledge is done through routines, rituals and ceremonies. Nowadays, a person who lives far away from the origin village only comes to their village as a guest. The person does not deeply involve in the preparation of the rituals and celebrations, so the person does not have an attachment to the process. This fact leads to the commodification of the rituals and celebrations, because people look for practicality, and does not have deep knowledge about the sacred process and events.

The actors of the commodification are the ones that understand about the meaning of the events. They deeply understand the theories and practice, so that it has monetary value. The ordinary people just follow these experts.

In the past, the transfer of knowledge exists through involvement. We made small canang, and small offerings, and these small activities are a part of the knowledge transfer.

Nowadays, this process is no longer happening, because we bought the items needed for the rituals. Everything is a commodity. For outsiders, the Balinese are still strongly attached to the rituals and ceremonies, but in reality, some of the processes are already missing from people's experiences.

In the old ways, younger generations are going through apprenticeships for rituals and ceremonies. Nowadays, people are moving to urban areas, and the apprenticeships for the rituals and ceremonies are no longer relevant. It is still happening, but this process eroded. People come back to the origin village, be a guest at the religious rituals and ceremonies, and then go back to the city, with less involvement in the processes. Most people are doing this, particularly the younger generations. Learning by doing, and Interaction with the process is the main vehicle of knowledge transfer. Other form of knowledge transfer is the ritual itself.

In architecture, we could build a merajan or pelinggih, but it is not completed without a ritual. This ritual requires religious knowledge.

Another form of knowledge transfer is through written knowledge and online sources. In the past, the locality is more visible with local expression. Currently, expressions are more universal because the knowledge transfer is from general books and other general written sources. Written language/ works also refer to general sources, while oral knowledge transfer may contain more local oral references. Oral language provides a bigger possibility of interpretation, while written language may contain a higher degree of generalization and formalization of knowledge. Therefore, the localities are eroded.

There are tensions between “practicing the local” and “practicing the universal”. In reality, people are struggling to practice local knowledge because it has fewer written sources.

Universal knowledge seems stronger and more valid because it has a written source. Local knowledge that has fewer or no written sources may be considered wrong, that it is not in accordance with the “right” knowledge. It seems that people are more generalized because of the condition.

Another factor that may influence knowledge transfer is marriage because a person that is not married yet is not obligated to be involved in the Banjar activities. Once a person is married, he will be formally listed as a head of a family and formally listed as a representative of a family in the Banjar. There are local variations, but in general, a parent will retire as a family representative in a banjar, once he has a married son.

Related to the overall topic, of the connection between the belief system and architecture, there may be a subtopic under the “belief system” that is related to architecture. We may need to construct a bridge that connects the topic of belief systems to architectural observation.

b. Informant – WM

In-person Interview | Denpasar, July 2022.

Can you mention your full name?

My name is WM.

How should we describe the variability of religious expressions in different families and their houses?

In daily life, the rituals, its physical features, and visual expressions of them are depending on the situation and capability of each person.

Can you describe your family?

I was born here, in the old house. We are a big family. I have 12 siblings. Two of them are males, the 9th and the 10th child. I am the oldest among my brothers and sisters.

Right now, I live here. Because we have limited space, we modify it a little bit.

Can you describe the spatial arrangement of the old house?

The main building is L-shaped. Although located in the old building site, the house is relatively new. As the family grows, each family builds their house within the site.

We have bale dauh, kitchen, and Bale adat. The Bale adat is an open building without walls.

All activities regarding tradition are held in the Bale adat.

We decided to integrate the Bale Dauh and Bale Daja into one building, and this is the reason for the L-shaped building. In ideal conditions, Bale Dauh and Bale Daja are separated.

Bale Dauh and Bale Daja are the bedrooms.

Bale Daja is also known as Meten. The Oldest of the family has the right to sleep in this building. Regarding Bale Adat, a family could build it depending on the family's ability, which is why we may see different sizes of Bale Adat. Bale Gede is the bigger version; it has twelve columns.

The application of traditional guidance is flexible. It is okay if you can only build a smaller one, and it is also allowed if you can build a bigger one. The size of the building may depend on the family's ability and the site's condition.

It is also allowed if you only build one Pelangkiran (shrine). People may interpret it differently. There are multiple solutions to limitations. The ideal condition is that you can follow all the guidance of Asta Kosala Kosali, regarding the locations of the sacred place, Bale Meten, Loji (storage for sacred items), and other functions. In the past, building all elements of the traditional house was less challenging, because the resources and labor were available. Currently, it is more challenging.

Did you build the house?

Yes. The house was built in 1975.

During the design stage, did asta kosala kosali influence your decisions?

Yes, even though I cannot follow it completely, I tried to build the house based on the asta kosala kosali principles. Some design decisions are not following traditional building principles. Although in this old house, it is good that I could still separate functions in different buildings around the courtyard.

In the city, it is almost impossible to build it this way. In my son's house in the city, we cannot build a complete worship place. We only build one Pelinggih: Pelinggih Padmasana. Padmasana's function is similar to a bus station. Any God that you call could sit there temporarily. We could worship and invite any God to the Pelinggih Padmasana. After the worship, the God may return to the Gods' realm.

The character of Pelinggih Padmasana is that it has no roof. If a pelinggih has a roof, it indicates that the pelinggih belongs to a particular God. We cannot invite other Gods to such Pelinggih. The roof could be made from any materials: thatch, wood, or roofing tiles. For example, Pelinggih Taksu is a seat for a particular God. We cannot invite other gods to sit on Pelinggih Taksu.

Since we can invite different Gods to Pelinggih Padmasana, it is enough for a small house. Pelinggih Padmasana enables the house owner to do various rituals and worship different Gods.

For the Balinese Hindus, it is possible to do nyawang, which means call or pray from a distance. For example, if we want to communicate with our ancestors who sit on the origin house's merajan, we could do nyawang from the city.

Another very important shrine is Pelinggih Penunggun Karang. Penunggun Karang is the guardian of the house. My son's house has two Pelinggih in the front yard: (1) Pelinggih Padmasana and (2) Pelinggih Penunggun Karang. By having the Pelinggih Padmasana, he does not always have to go back to the origin house to pray or worship the Gods and ancestors that sit in the family temple.

In the family house, even though it is on the same site as the family temple, I still build one Pelinggih Padmasana in my courtyard to do my daily worship. Each temple has its own odalan, the birthday of the temple. One year in the Balinese calendar contains 6 months, or 210 days. In the Odalan, every member of the temple should come and join the ritual.

Is this knowledge kept in each Balinese's memory, or is there someone who holds this knowledge? Is it the Priest/ Pemangku? who is consulted for this?

Yes. our capability is not equal. I only know the outer layer of this tradition. everyone has his own capabilities and may have different interpretations. Hence, it is suggested to consult the pemangku, pedanda or sulinggih to discuss this religious tradition. In addition, we also need to seek advice from a priest that is in line with our family clan because each family clan and caste may have differences. Someone could be a Brahmana, Satria, Waisya, or Sudra caste member. Brahmana family member who became a sulinggih is called pedanda. Satria who became a sulinggih is called Sri Begawan. A person may become a priest because of a family line or a calling. The institution that is responsible for producing new priests is the Parisadha Hindu Bali.

During the design process, was there any consultation with a priest?

I do not really master the theories and principles, but I worked as a builder.

Can I call you an undagi/ traditional architect?

No. Undagi is formalized through rituals and ceremonies. They will totally master the asta kosala kosali. Somebody who has the title undagi has to be able to provide guidance, arrangements, details, and dimensions. I understand a large part of it, but I would not call myself an undagi. After a house is built in Bali, it is not considered finished yet. A ritual will mark the completion of the construction process, and only later, the owner can live in it. The undagi will guide the whole process, including the rituals. The undagi is the one who has the right to state the completion of the construction process. I have built many buildings but cannot provide detailed guidance, particularly regarding the traditional Balinese measurements. Every building has its own dimension.

Does your house use the traditional measurement and dimensions?

The most important building that relates to the traditional dimensions is the Bale Adat. In my house, the Bale Adat is the only building that is calculated. I consulted a sulinggih regarding the dimensions, because he also mastered the traditional measurement units. I did not consult an undagi. The sulinggih provides the dimensions and building proportions based on his body. The dimensions use his body size, not mine, because it is also allowed. In Bali, this is flexible. The size of the columns, the height, the distances, and other dimensions are based on the body measurements.

Besides the Bale Adat, other buildings' dimensions are not based on traditional measurements, but I try my best to apply some principles that I know. For example, no doors are facing one another.

The Bale Adat follows the traditional principles as much as possible.

Some small houses do not have bale adat, and for every occasion that needs one, this family will use the one in the origin house. In rare cases where a person does not have an origin house, he could do the occasion (for example, the manusa yadnya) in his house. The most important is our purpose and intention. It is flexible. However, there will still be rules to follow.

I also notice that the terrace in the L-shaped building has various heights. Is this because of the Balinese traditional principles?

Regarding the heights, you are correct. A higher elevation means a higher functional hierarchy. Although both contain similar function, the higher part of the building represents the Bale Meten, which is more important than the other bedrooms. I also consider that the height difference created a more beautiful composition. This height difference corresponds to the rules in the asta kosala kosali. I cannot accommodate all principles of the asta kosala kosali, but at least I do not violate the rules. I would rather follow less principles and not violating any rules, than follow more principles but violate one rule. I believe violating a rule will create a wasteful life.

What is a Karang panes?

there are many reasons of a place is called Karang Panes. We have to build a Pelinggih Indera Belaka as the solution. A piece of land on the corner, or at the end of a road is Karang Panes. A land that is surrounded by roads is also considered Karang Panes.

So regarding Pelinggih in the public space, can I assume that it is built there to neutralize something?

Yes, we ask so that the negative energy do not disturb our life. We need a Pelinggih to Neutralize negativity. We could list the pattern of the potential negative energy because it mostly happens in similar places.

I am interested in the availability of pelinggih outside the houses. Besides the Karang panes. According to your understanding and experience, what other sacred characters required pelinggih in the public space?

We treat sacred elements, such as big trees, as if they were humans. We decorate and provide clothes for big tree, because we treat them as our friend. A big tree has been living for such a long time, and it plays an important role in the surrounding area. We also build a pelinggih and decorate them to keep us aware of their existence, and we have our attention toward them. They exist in this world, similar to us. The decoration act as a signifier of something that is significant to us.

I see many small shrines: (1) Location with Karang Panes character, (2) under a big tree. How do you decide where to put your offerings? Do you choose the closest ones to your house? How do you decide the locations that are important for you?

It depends on our objectives. What do we want to ask or achieve? For example, if we feel hungry, we might not ask food from Batara Siwa. Most shrines are seats to specific gods and sacred beings. Each has its function. I could use an analogy. We have various government agencies that take care of different matters in our world. A government agency may deal with water and irrigation, electricity, finance, and many other things. If we see a pura/ temple in a traditional market, It must be a pura melanting, and the God worshipped in the temple must be related to trading. Although it may have similar physical characteristics to a family temple, a person will not come to the temple to worship their ancestors.

Everybody may decide the locations to put canang/ offerings around their house, depending on their needs and objectives. Sang Hyang Widhi is one God. He will present in different expressions, and we worship the one God for his different roles. There are many Gods, but they are one. In many different roles, He will have different names. By having these many names and personifications, God shows and provides his blessings. Without his personifications, we cannot imagine him.

I like the analogy that God's blessings have departments: Department of Trading, Department of Farming, Department of Education, and other departments. These departments have layers and hierarchies. In the government structure, at the lowest level, we may have a lurah or headman of a village.

If we go to a nearby market, we may see many shrines or temples. We could also see shrines or temples at road intersections. It keeps the order and balance of our world.

These sacred religious places, can they be multifunction? For example, can they be a social gathering place after the rituals?

It is allowed. Before and after the rituals, people could gather and have conversations. During the rituals, it is not appropriate to conduct such activity. I also must say that not everyone is allowed to put offerings in the pelinggih, particularly in big temples. Only those who have been cleaned are allowed. In addition, many worships are communal activity, not

everyone can lead the rituals, even though a person know the mantra. Although a person knows a better mantra for a ritual, not necessarily able to lead a ritual. It is not his role.

What about the sacred locations in a house? Is there any pattern of sacred locations? Is it similar for each house?] I am interested in the sacred locations in a house, and the pelinggih and pelangkiran.

We put an offering at our entrance, so negative energy and attitude stop there. Good will and good energy are welcome to enter the house. The offering is a symbol that the owner of the house respects the one who guards the house.

What is the difference between offerings you put on the ground and those you put on a higher surface?

There are offerings that we put on the ground, and there are offerings that we put on a pelinggih or pelangkiran. Pelangkiran's function is similar to pelinggih. It is essential, particularly in smaller houses. In smaller houses, it could be difficult to build a pelangkiran or a house temple. These offerings symbolize our piety.

Offerings on the ground are addressed for beings that are lower than us. It is addressed to the ones that dwell in lower realms. These offerings are not for Gods and ancestors. We provide offerings for these lower beings so they will not disturb us. The mantra for both worlds is also different. In Bali, we have levels of language. The mantra that accompanies the offerings for the beings of the underworld uses a lower level of language. The worship and the contents of the offerings depend on a person's ability. It depends on the calling and ability. We do not need to force ourselves to go beyond our ability to provide. We may not borrow money or steal to be able to provide offerings; our offerings may not be accepted. In Bali, there is a word karmapala, the fruit of our doings. We reap what we sow.

Is there any guide regarding the sacred locations within a house? Are there rooms that are more sacred than other rooms?

Within a house, we shall make a pelangkiran. Usually, each building has one. The granary and the kitchen will also have it. Someone can also provide pelangkiran to support his

business. If I have a shop, I will have a pelangkiran within my shop to ask for guidance. We need God's blessing for a successful business and work.

Do details in a house related to the spiritual world?

No, the detail is an aesthetic expression and not necessarily a religious expression; again, it depends on financial ability. The most important is our heart: sincere. Sometimes people do more than they should.

The rules are always flexible. If you cannot do that, you can do this. You can choose the most complete, the less complete option, or the least complete. They function similarly. The way we do our ceremonies may also reflect our wealth; it is a reflection of ourselves.

Regarding the Banjar adat and desa adat, what are the differences between these two? Do they play different roles? How do we attached to these institutions?

The smallest institution is the family. Above the family, we have Banjar. The leader is Kelian Adat. Each Banjar has its own perarem/ awig-awig that keeps the solidarity. If there is somebody who passes away, it will be announced. The Bale Banjar has a kentongan, a drum made from wood which is struck to sound an alarm or information. There are different rhythmic beats as codes that signify various information: danger signal, death of a banjar member, marriage, invitation to participate in Banjar's activity, or other information.

The Bale Banjar conducts routine and non-routine. It has a regular biannual meeting conducted after each Kuningan. In every meeting, each family will report if there is any new member of the family or if somebody is married and no longer a member of the banjar. The meeting also discusses the financial condition of the banjar. The House temple is called a sanggah or merajan, while at the level Banjar we have Pura.

Desa adat is a collection of several banjar. However, it is also possible that a Desa adat only consists of one Banjar adat. Some Desa adat could be big and contains more than 50 Banjar adat. the leader is Bendesa adat, and the Desa adat also has awig-awig. Desa adat's boundary is not necessarily identical to Desa dinas' boundary. My house is located in Banjar Pasekan Belodan. Belod means south. The Banjar consists of 230 families. My clan currently consists of 23 families. Although the Banjar has 230 families, it does not mean that all of them stays here. The number indicate the number of families that are linked to the local family temple.

Some families stay in other cities. Even though they live in different cities, they will come back to this Banjar in every traditional ceremony. The Desa adat is Desa Adat Kota Tabanan, consists of 23 Banjar. As the Desa Dinas, Desa Dinas Kota Tabanan consists of three Kelurahan.

c. Undagi – I Wayan Pasek Sudibya

In-person Interview | Ubud, July 2022.

May I have your full name?

Yes, sure. My name is I Wayan Pasek Sudibya. Balinese have the component of the name that explains the order of the birth. I am a first born. I was fifteen years old when my father passed away. After my father passed away, I travel and migrated to different cities to work.

Can you tell the story about how you gained your expertise?

Please understand that I also always learn and develop my ability. I would not call myself a master.

It is a long story. I migrated and work in Gianyar, Tampaksiring, and look for experience and broaden my understanding. I learn through apprenticeship. I work to other people and get my knowledge from senior carpenter.

I start from the bottom. The carpenters that are working for me now are also in the learning process and may be independent carpenter after they gain enough knowledge and understanding. Most of my workers are locals, from this neighborhood and the surrounding villages.

I learn by working in Tegalalang. I was learning mengukir, learning about how to carve the wood there. I also worked in Blahbatuh and Sukawati area. Afterwards, I join my parents here in this workshop. They build pelinggih, the Balinese shrines. Within my family, some are working as carpenters and construct pelinggih and sanggah. After my parents got sick, I look for my previous employers, looking for job. After some time, I come back to this village and run this workshop.

What time did you start learning carpentry and construction of Balinese traditional buildings?

I start my own workshop around 1998. It has been 25 years since I start. At that point, I dropped out of highschool and just start working. I was born in 1976.

I start to interact with carpentry in 1988 when I was still in Junior High School. As I learn by working in a workshop, I received salary that I use to support my education. I use my salary to pay my school tuition.

Can you describe the phases of learning? How do you start?

I start from learning the techniques of wood planing. I started by learning to identify the type of woods: the size and the characters. This is the basic principles, to know the raw materials and its preparation. I have to understand the length and diameter, and its characters. This is the basic because our work of planning and constructing started with choosing the right material for our works.

After learning this from my first employer, I move to Tegalalang area. I learn how to carve the wood. I learn the carving methods for seven months. After I receive the knowledge and understand the work, I move to different place. After Tegalalang, I still want to learn, and I learned how to create Balinese ornaments and how to construct the Balinese traditional buildings. I learned how to create the ornamental details and the details of building structure. I spent one year to learn this, and I learn how to construct the components in Blahbatuh. I spent nine years at that workshop. I learn how to construct and connect the elements during this nine years. Hence, I understand the characters of each element. I know which wood that I need to construct different type of buildings.

If the owner requests a particular type of wood as the material for his building, I have understood whether it is possible, good, and appropriate for the building. Afterwards, I resigned because of hernia. The carpentry and construction work is challenging and it interfere with my health.

Afterwards, I work in another workshop that produces pelinggih and sanggah, the worship place for Balinese Hindu. The pelinggih has small size. I spent another seven years at this workshop. In 1998, I start receive work orders. The forst ones come from my previous employers.

I start learning when I was still in junior high school. After my father passed away, I decided to learn how to work.

Do Balinese carpentry and traditional building construction involve spiritual element? How do you explain the connection between your work as a carpenter and builder, and the spiritual world?

In the carpentry and building works, for a Balinese, there is sikut, the traditional measurements. Every measurement of width and height of a building component has a name. Our ancestors provided these measurements. Besides that, every profession will have a pelinggih for every type of occupation. In my workshop, I also have a pelinggih.

Before a carpenter dare to do a project as an independent carpenter, there is a ceremony called the mintanen mrajapati. Measurements are sacred, so before someone officially declares himself a carpenter, he will have to do this ritual/ ceremony. The objective of this ceremony is to request an intangible permit. Asking the Gods and Ancestors for their permission before a person become a professional. This spiritual permit is a mandatory for the carpenter. The main tukang, the carpenter must have this spiritual permit. After he gained this permit, everytime he starts his daily work, he also has to request for a spiritual permission, so every result is permitted. The reason is because when we do our work, we do it based on our worship to the Gods and ancestors. We do the work without expecting a reward. By doing our profession, we are doing a spiritual service.

Since most of traditional Balinese are affiliated to sacred religious component, a Balinese cannot freely built and create such components. These traditional components are considered as sacred and only the ones that holds the spiritual permit is allowed to create the components. Hence, the qualification is divided into two categories: the pragmatic qualification and the niskala qualification. The tangible and intangible qualifications.

Can you explain about this spiritual institution that provides the spiritual permits?

If we believe, we will be guided to create appropriate measurements. If we work without our spiritual permit, our mind could be chaotic and cannot produce appropriate decision to problems.

What about these traditional measurements? Is it based on body size?

In my work, each component is based on a particular reference. The owner sometimes comes with a measurement. For example, an owner can come and request a specific height, plus the width of two fingers. It is called urip-urip. So this measurement could come from the owner. Urip Urip means enliven. A person who understand will learn about his own urip-urip and request the carpenter to build according to this measurement. If the owner does not understand about his own urip-urip, he could trust the carpenter to give the measurements. This measurement will be based on the size of body parts, and a carpenter could give his measurement. The measurements is intended so that a building will have a life, it will have a soul or spirit.

What about the ornamental patterns? Does the owner involved in the ornamental element of a house?

It depends. If the owner ask for a particular pattern, the carpenter will make the ornament according to the owner's request. It depends on the owner. It could be based on two things: it could be based on the owner's wants, or it could be based on the owner's financial power. Owner could mention that he has a budget limitations and ask for advice on the possible ornaments that is affordable and within his budget. What kind of details can I get with this amount of money?

I see that your house and workshop also apply traditional Balinese architectural principles?

Yes, in this house I have the bale dangin, kitchen/ pawon, bale daja, gedong, and bale loji.

The work depends on the order, price, and request from the owner. Can you about the process, if a family want to build?

The process depends on the size. If the size and material is known, the price could be calculated. The owner will decide the size.

Can you introduce yourself as an undagi?

It depends, but I do not have the courage to advertise myself as an undagi. I am still learning.

So when will a carpenter has the confidence, or be allowed to advertise himself as an undagi?

It is unlikely that a person will advertise himself as an undagi. It would be extraordinary. Except, if somebody else mentions or identifies you as one undagi. If another person mentions that you are an undagi, it is allowed. But to self-proclaim is very unlikely. Usually, people identify an undagi from word of mouth. Only an overly-proud person will advertise himself as an undagi. I do not have the courage to do so. I work for the Gods, I do not want to go beyond His power, and I would rather be humble.

Even after the ceremony and ritual to have the “spiritual permit,” we may not advertise ourselves as an undagi?

It is a cultural norms. People avoid self-proclamation. In a modern system, people may advertise their CV and make resume. Here, Balinese people believe that they should let their work do the talk. So it is not alright to self-proclaim that oneself is an undagi. It is only traditionally allowed for some one to have somebody else mention that he is an undagi. In general, a Balinese is reluctant to advertise himself. In the modern world, people advertise himself. In Bali, people let their work do the talk and indicate their expertise level. The undagi lets the client value the undagi's work.

Regarding the process, if somebody comes and mention his intention to build a bale. What do they ordering? Do they come and order a complete traditional house, or can they only order a particular part of traditional building?

It depends on the person. If somebody does not have a bale dangin, he may only order the bale dangin. Usually, I will ask about the size and measurement, and discuss the price. I will describe the price and level of details that a person will get, based on different price point, so the client will have an understanding of the price and expectation. If a client has an empty land and want to build a complete traditional building, I will guide him from the beginning. We will start by enlivening the land with a ceremony. I start measuring, or the client could

come up with his own measurement, and decide the size of each building. If he does not ready with his measurement, I would ask him to go to a griya, a priest's house, to ask for an appropriate measurement.

During this project, how do the client communicate with you? is there any other party involved in the communication process? For example, a priest.

Yes, the client usually has a priest that he is attached to. Hence, he should also communicate with this priest, particularly regarding the measurement. The client can also take his priest to my workshop and we can have a conversation about the project. I will not prefer to use a general measurement and would suggest the client to communicate with his priest regarding measurement because each region in Bali may have different variants and different details of measurement. If we agree on the project, I will come with the priest to the building site, and we may measure the site together to find an appropriate measurement for the owner/ client. Only afterward, I can start my work. The measurement from my area may not work as good, in other region. A lot of process involved.

Nowadays, a lot builder do not care about this traditional measurement anymore. We could see advertisements that offer "Balinese traditional building," that do not rely on specific measurements. This is not the right way in creating a Balinese traditional building. These people only sell the traditional building as a commodity and only look for maximum profit.

So they are only sellers?

In principle, all Balinese traditional house are custom built. It is not mass-produced. Eventhough buildings may look alike, but a 5-centimeter difference will make a different effect to the owner. Traditional building may look the same, but they are different and built specifically according to the owner.

If a person want to build a Balinese traditional house on an empty land, build from zero, the person will communicate with a sulinggih, a pedanda or a priest in the very beginning. the priest will philosophically measure things based on the priest's literature, and based on the owner's body size. Pragmatically, in order to make a beautiful building it is depends on the builder, the tukang, the undagi. Within this process, negotiations may happen. For example, the tukang may have a professional argument and suggestion to modify the measurement.

The width, or the length, to make the building beautiful. The priest may also communicate the undagi regarding the size and measurement, and ask the undagi his professional opinion, about the beauty and appropriateness of a set of measurements. An undagi may suggest an adjustment to a measurement, whether to add or reduce size.

It is a common thing that a Balinese has a spiritual guru. This spiritual guru is their priest, live in a griya. The client should visit the priest in the griya and ask about a measurement. Within this measurement, the niskala, the intangible, is located. It is always about the balance between the skala and the niskala, between the tangible and the intangible.

So because the priest is from different locations, there will be varieties of measurements?

Yes. A project that is built in the Singaraja area will be different from the ones built in the Tenganan area. Hence a person may want to be approved or permitted by their spiritual guru, the priest that they believe, most likely by the priest from their place of origin. An undagi is the executor of the work and building consultant, equipped with the knowledge of workmanship, ketukangan.

Is there any limitation regarding geographical boundary or jurisdiction in which an undagi is authorized to practice?

There is no limitation. An undagi may work anywhere. However, they have to follow local rules. When I have a project in other village, I cannot bring my village custom/ habit with me. There will be a kind of negotiation with local custom. I need to look at local habit and convention. Sometimes it also depends on the owner's knowledge. If the owner has the basic knowledge, the conversation between me and him will be longer, because there will be much to be discussed. We may discuss about the sikut, the measurement, and many other things. However, if the client does not have the basic knowledge, the conversation will be shorter because he will depend on my knowledge and trust me with my decisions.

In the case of having the conversation with a client who has the basic knowledge, what topics are usually included in the conversation?

Usually, the conversation would start with what the owner's description of his wants, and based on his description, I would suggest the height of the columns, the distance between columns, the width of the building, and other measurements. We would also discuss about the roof materials. In general, the conversation would cover the topics of measurements and sizes, the building materials; the type of wood that is going to be used in the construction process. The design of the ornaments and carvings such as floral designs or other ornamental types. The price usually being discussed at the end of the discussion. Hence, the topics of the discussion include the dimensions, materials, design, and the price.

An owner that understands the Balinese principles may also suggests the dimensions, such as the heights and the type of wood. He may also discuss about the good time to start the work. An owner who does not understand the Balinese principles may let me decide and I will provide my advise.

During the beginning of the planning process, is there any religious rituals or ceremonies?

Yes, there is. I will make banten santun, as a symbol that I start my work. The process is called nuasen. if a person knows that I start my work, at duase, at a good day to start our work, based on the Balinese calendar. This ritual and the offering are done by myself. At the least, I shall provide a canang.

Before I start my work, I also let the client know that I start my work. A client may also request a particular date that I start my work. If he does not provide the date, I will decide for myself.

At the beginning of the work, I personally start the work, before I let my workers to help me or continue the work.

During the production process, is there any rituals and ceremonies?

Yes, every morning I do a morning ritual and offering at the pelinggih, and every six months I would do a bigger ritual, to respect and worship Beliau. This ritual is called the tumpak landep. The Tumpak Landep ritual is a ritual to respect the Pasupati which comes in different forms of weapons, or in modern times, in many kinds of equipments that we use to do our works. Hence, this ritual is for my work/ occupation as a master builder.

The ritual for the client would be different. For the client, I provide the good date to start the work, and the good date to end the work. Whether the project will be finished in six months or a year, I will want the project to be finished at a particular date. There will be a good date to finish the works in my workshop, and a good date to finish the work in the project site. When the project is finished, I will also provide an offering, ngebanten.

In my everyday routine, I always provide canang, ngebanten canang, offering every morning to ask for safety and blessing.

In the mass production of building parts, for industry, we do not need to set a good date. However, for custom, traditional projects, I shall follow the good day. When to start, when to finish, what rituals should be done. Clients who are aware of the traditional principles would also bring their banten or offerings to my workshop on the day I start the work. They may also have the good day to pick up their orders from my workshop. Even if the work in the workshop is finished, they will take the orders according to their good day. They will wait until the good day comes.

After the building components being transported to the project site on the good day, the construction of the building will wait for another good day to start the construction works, and the construction works will need to be finished on another good day. There are many good dates that we shall pay attention to.

I follow this in building a Balinese building. Those principles are not essential in constructing a regular, non-Balinese-building. Building a non-Balinese-building is not so complicated, compared to building a Balinese building.

However, some Balinese do not care about the traditional principles and do not want to know these processes. But for Balinese people who understand, they will know the appropriate process and phases of building.

What about the building site? Do you find less people in urban areas want to build a Balinese building?

There are some people who wants to build Balinese building in the city and want to follow the traditional principles. But most of these people do not want to know the process and choose to let me decide the details. In the villages, people really care about the details of the work and the good timings. Most city people pay less attention to these traditional principles,

and not considering good timings or good days. In most cases, they only care about the good timing for the finalization of the project, the day to install the roof; during the purnama, the full moon.

As a Balinese, what will happen if we do not follow the Balinese traditional principles? What are the consequences?

For me, I do not have the courage to face the consequences. Sometimes, when I do not pay attention to my ritual, I easily forgot things and cannot concentrate at my work. It is difficult at work, and I have to ask for sacred permission, and the solution will be given, a way to solve my problem appears. This is based on our belief.

How many people are working for you at the workshop?

Five people. Each has different ability, and is working on different type of works. The task is given based on their level of expertise. If a person has the ability, I may allow him to do all type of works at the workshop. If a person just started to learn, he will start from learning how to work with block plane to cut the end grain of the wood and smoothing plane. He will slowly have the knowledge and understand the measurement.

How do you teach detailed work, such as wood carvings?

They start with very basic carving, and are not working with ornamental details. In my workshop, none of my workers have the ability to do the detailed carvings. I will hire an expert in carvings if I need one, depending on the project than I am working on. At my workshop, the works mostly involve ornamental carvings, and I may assign carpenter who specializes in detailed carving to do the tiny details. I will be responsible for the raw materials and measurements.

I shape the building and woodworks, and outsource the small details. These detailed decorative elements will be sent here, and I will be the one who is responsible in putting these building elements together. Hence, the finishing process of all woodworks also done by my workshop.

Who is responsible to construct all building components in the project site?

I will be the one who constructs the building elements at the project site. It is my responsibility. During this construction process at the project site, the owner is not involved in the construction works. The owner only suggests good timings for the project and is not involved in the wood joinery works or other construction works.

How do a Balinese learn their traditional building knowledge? How does the knowledge transfer works?

For me, I learn from my parents and learn through apprenticeship. The Undagi, the master builder, taught me through practices. My grandfather and my parent were a carpenter, a carving expert. He did the wood carvings for the local bale Kulkul in this village. You can also access the Bale Banjar. I give you the permission to observe the details.

My last question would be about the cost and payments from client. How do you calculate the cost and the amount that a client needs to pay?

I count the number of days needed to complete the project, to count the labor costs. I multiply the number of days and the daily labor cost. Currently, all costs are estimated and billed to the client. I know how many days that I need to complete a project, so I can mention the budget at the beginning. I count the number of days, costs of labor, costs of raw materials, transportation costs, and the works that need to be done at the project site. The cost of carvings can also be measured by the area of the woodwork. I count all the costs in general and discuss the costs with my client. The clients are allowed to negotiate the price.

What about the cost of construction works at the project site?

The works at the project site will be billed separately because the labor cost at the project site is more expensive. If daily labor at the workshop costs a hundred and fifty thousand rupiah, the daily labor cost at the project site would be a hundred and seventy-five thousand. The labor cost also depends on the ability level of the worker. Each person may have different payments based on their level of ability.

REFERENCES CITED

- Abu-Lughod, J. (1992). Disappearing Dichotomies: First World – Third World; Traditional - Modern. *Traditional Dwellings and Settlements Review*, 3(2), 7–12.
- Agung, I. A. A. G. (1989). *Bali Pada Abad XIX: Perjuangan Rakyat dan Raja-Raja Menentang Kolonialisme Belanda, 1808-1908*. Gadjah Mada University Press.
- Ahmed, B., Hasan, R., & Maniruzzaman, K. M. (2014). Urban Morphological Change Analysis of Dhaka City, Bangladesh, Using Space Syntax. *ISPRS International Journal of Geo-Information*, 3(4), 1412–1444.
- Alexander, C. (1969). *Houses Generated by Patterns*. Center for Environmental Structure.
- Alexander, C., Ishikawa, S., Silverstein, M., Jacobson, M., Fiksdahl-King, I., & Shlomo, A. (1977). *A Pattern Language: Towns, Buildings, Construction*. Oxford University Press.
- Alexander, C. (1979). *The Timeless Way of Building*. Oxford University Press.
- Aleksandrowicz, O., Yamu, C., & van Nes, A. (2018). Spatio-Syntactical Analysis and Historical Spatial Potentials: The Case of Jaffa–Tel Aviv. *The Journal of Interdisciplinary History*, 49(3), 445–472.
- AlSayyad, N. (2001). *Consuming Tradition, Manufacturing Heritage: Global Norms and Urban Forms in the Age of Tourism*. Routledge.
- Alsayyad, N. (2013). *The End of Tradition?* Taylor and Francis.
- Arthana, I. N. N. (2020). The Knowledge Building of Construction Process of Bali Arya's Architecture: Interpretation of the Manuscript Asta Kosala Kosali. *Journal of Architectural Research and Education*, 1(2), 168-175.
- Bafna, S. (2003) Space syntax: A Brief Introduction to Its Logic and Analytical Techniques. *Environment and Behavior*, 35(1), 17-29.
- Bakker, F.L. (1993). *The struggle of the Hindu Balinese intellectuals: developments in modern Hindu thinking in independent Indonesia*. Vrije Universiteit Press.
- Bappeda, K. D. (2011). *Materi Teknis Rencana Rinci Kawasan Strategis Kota Denpasar*. Wartha Bhakti Mandala.
- Bourdier, J.-P., & AlSayyad, N. (1989). *Dwellings, Settlements, and Tradition: Cross-Cultural Perspectives*. University Press of America.
- Brand, S. (1994). *How Buildings Learn: What Happens After They're Built*. Viking.

- Budihardjo, E. (1995). *Architectural Conservation in Bali* (4th ed.). Gadjah Mada University Press.
- Chakrabarti, V. (1998). *Indian Architectural Theory: Contemporary Uses of Vastu Vidya*. Curzon.
- Creswell, J. W. (2022). *A Concise Introduction to Mixed Methods Research* (Second edition). SAGE.
- Cuthbert, A., & Suartika, G. A. M. (2014). The Theatre of the Universe-Culture and Urban Design. *Journal of Urban Design*, 19(3), 275–277.
- Cuthbert, A., & Suartika, G. A. M. (2016). The Vernacular Hiatus: Modernity, Tradition, and Ethnicity. *Ruang-Space: Jurnal Lingkungan Binaan*, 3(2).
- Davis, H. (1999). *The Culture of Building*. Oxford University.
- Douglas, M. (1966). *Purity and danger; an Analysis of Concepts of Pollution and Taboo*. Praeger.
- Drake, E. (2012). *Gayatri Rajapatni Perempuan di Balik Kejayaan Majapahit*. Penerbit Ombak.
- Eiseman, F. B., & Eiseman, M. H. (1989). *Bali, Sekala and Niskala*. Periplus Editions.
- Geertz, H., and Geertz, C. (1975). *Kinship in Bali*. University of Chicago.
- Geertz, C. (1980). *The Interpretation of Cultures*. Basic Books.
- Glassie, H. (1975). *Folk Housing in Middle Virginia: A Structural Analysis of Historic Artifacts*. University of Tennessee Press.
- Glassie, H (1986). *The Stars of Ballymenone*. Indiana University Press.
- Gonda, J. (1975). *Handbuch Der Orientalistik*. E. J. Brill.
- Goris, R. (1948). *Sedjarah Bali kuna*. Percetakan Bili.
- Graaf, de H. J. (1986). *Puncak Kekuasaan Mataram Politik Ekspansi Sultan Agung*. Pustaka Grafitipers.
- Hanson, J. (1998). *Decoding Homes and Houses*. Cambridge University Press.
- Hauser-Schäublin, B. (2004). "Bali Aga" and Islam: Ethnicity, Ritual Practice, and "Old-Balinese" as an Anthropological Construct. *Indonesia (Ithaca)*, 77, 27–55.
- Hillier, B., and Hanson, J. (1984). *The Social Logic of Space*. Cambridge University Press.
- Hillier, B. (1999). *Space is the Machine: a Configurational Theory of Architecture*. Cambridge University Press.
- Hobart, H., Ramseyer, U., and Leeman, A. (1996). *The Peoples of Bali*. Blackwell.

- Hooykaas, C. (1973). *Religion in Bali*. Brill.
- Lancret, N. (1997). *La Maison Balinaise En Secteur Urbain: étude Ethno-architecturale*. Association Archipel.
- Lewis, J. and Lewis, B. (2009). *Bali's Silent Crisis – Desire, Tragedy and Transition*. Lexington Books.
- Lucas, S. (1994). *Continuity and Change in Balinese Dwelling Environments: A Socio-Religious Perspective*. Georgia Institute of Technology.
- Macrae, G., & Parker, S. (2002). Would the real Undagi please stand up? On the social location of Balinese architectural knowledge. *Bijdragen Tot de Taal-, Land-En Volkenkunde*, 158(2), 253–281.
- Mashad, D. (2014). *Muslim Bali*. Pustaka Al-Kautsar.
- McDaniel, J. (2013). A Modern Hindu Monotheism: Indonesian Hindus as “People of the Book.” *Journal of Hindu Studies*, 6(3), 333–362.
- Oliver, P. (1987). *Dwellings: The House Across the World*. University of Texas Press.
- Oliver, P. (1997). *Encyclopedia of Vernacular Architecture of The World*. Cambridge University Press.
- Oliver, P. (2006). *Built to Meet Needs: Cultural Issues in Vernacular Architecture*. Architectural Press.
- Pavlidis, E., Hesser, J. (1989). Sacred Space, Ritual and The Traditional Greek House. In Bourdier, J.-P., AlSayyad, N., & International Association for the Study of Traditional Environments. *Dwellings, settlements, and tradition: cross-cultural perspectives*. University Press of America.
- Parimin, A, P. (1986). *Fundamental Study on Spatial Formation of Island Village: Environmental Hierarchy of Sacred Profane Concept in Bali*. Universitas Osaka.
- Picard, M. (2011). Balinese Religion in Search of Recognition: From Agama Hindu Bali to Agama Hindu (1945-1965). *Bijdragen tot de taal-, land- en volkenkunde* 167(4). 482–510.
- Picard, M. (2008). Balinese Identity as Tourist Attraction: From “cultural tourism” (pariwisatabudaya) to “Bali erect” (Ajeg Bali). *Tourist Studies*, 8, 155-173.
- Pringle, R. (2004). *Bali- Indonesia's Hindu Realm*. Allen and Unwin.
- Putra, A.P., Lozanovska, M., Fuller, R. (2019). From Spiritualistic Toward More Pragmatic Pattern: Re-Ordering Balinese Houses and Viability of the Household Traditions in Tourism Economy. *Journal of architecture and urbanism* 43(1), 47–61.
- Putra, I.N.G.M., Nurwarsih, N.W. (2020). The Place-Identity of Denpasar in the 21st Century. *Advances in Social Science, Education and Humanities Research*, 475, 113-122.

- Rajagopalan, M. (2012). IASTE 2012 Conference Report: Tradition as Prescription, Polemic, Possibility and Provocation. *Traditional Dwellings and Settlements Review*, 24(2), 7–10.
- Rapoport, A. (1969). *House Form and Culture*. Prentice-Hall.
- Rapoport, A. (1982). *The Meaning of the Built Environment: a Nonverbal Communication Approach*. Sage Publications.
- Ramstedt, M., and Viveka R. (2004). What's in a Name? Agama Hindu Bali in the Making. *Hinduism in Modern Indonesia*. Routledge.
- Ramstedt, M. (2004). *Hinduism in Modern Indonesia: A Minority Religion between Local, National, and Global Interests*. Routledge Curzon.
- Ramstedt, M. (2008). Hindu Bonds at Work: Spiritual and Commercial Ties between India and Bali. *The Journal of Asian Studies* 67(4) 1227–1250.
- Reuter, T. Anton. (2002). *Custodians of the sacred mountains: culture and society in the highlands of Bali*. University of Hawai'i Press.
- Robinson, R. (1941). III.—*Ambiguity*. *Mind*, L, 198, 140–155.
- Rudofsky, B. (1964). *Architecture Without Architects: an Introduction to Nonpedigreed Architecture*. Museum of Modern Art.
- Sheng, Q., C. Zhou, K. Karimi, A. H. Lu, and M. Shao (2018). The Application of Space Syntax Modeling in Data-Based Urban Design - An Example Of Chaoyang Square Renewal In Jilin City. *Landscape Architecture Frontiers*, 6(2), 103-113.
- Stuart- Fox, David J. (1992). *Bibliography of Bali Publications from 1920 to 1990*. KITLV.
- Suartika, G A M, & Saputra, K E. (2019). The Creation of Harmonious Living Spheres - Landscape, Capital, and the Balinese Way. *IOP Conference Series. Earth and Environmental Science*, 248(1), 12065.
- Swanendri, N. M., & Suartika, G. A. M. (2019). Try and Find it - Understanding Public Space and Civil Society in Bali. *IOP Conference Series. Earth and Environmental Science*, 396(1), 12030.
- Suartika, G.A.M., Zerby, J., & Cuthbert, A. R. (2018). Doors of Perception to Space–Time–Meaning: Ideology, Religion, and Aesthetics in Balinese Development. *Space and Culture*, 21(4), 340–357.
- Suartika, G. A. M., & Nichols, J. (2020). *Reframing the Vernacular: Politics, Semiotics, and Representation*. Springer.
- Tjahjono, G. (1990). Javanese Duality: on the Myth and Reality of Center and Periphery. *Traditional Dwellings and Settlements Review*, 2(1), 80–80.

- Topcu, M. (2019). Morphological Structures of Historical Turkish Cities. *Iconarp International Journal of Architecture and Planning*, 7, 12-239.
- Vellinga, M. (2005). Anthropology and the challenges of sustainable architecture. *Anthropology today*, 21(3), 3–7.
- Vellinga, M. (2006). The Inventiveness of Tradition: Vernacular Architecture and the Future. *Perspectives in Vernacular Architecture*, 13(2), 115–128.
- Vellinga, M. (2017). A Conversation with Architects: Paul Oliver and the Anthropology of Shelter. *Architectural Theory Review*, 21, (1), 13.
- Vickers, A. (1989). *A Paradise Created*. Penguin Books.
- Waterson, R. (1990). *The Living House: An Anthropology of Architecture in South-East Asia*. Oxford University Press.
- Watts, C. (1987). *A Pattern Language for Houses at Pompeii, Herculaneum, and Ostia*. UT Austin.
- Wiener, M. (1995). *Visible and Invisible Realms: Power, Magic and Colonial Conquest in Bali*. University of Chicago Press.
- Yoo, C. and S. Lee, (2017). When Organic Urban Forms and Grid Systems Collide: Application of Space Syntax for Analyzing the Spatial Configuration of Barcelona, Spain. *Journal of Asian Architecture and Building Engineering*, 16(3), 597-604.