

Dualism in the transformation of Balinese ethnic residential architecture in Denpasar

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ARTICLE INFO	ABSTRACT
<p><i>Article history:</i> Received July 13, 2021 Received in revised form Nov. 29, 2022 Accepted Dec. 12, 2022 Available online December 31, 2022</p> <p><i>Keywords:</i> Balinese architecture trends Finance increase Occupants increase Space dualism Transformation of architecture</p> <p>*Corresponding author: I Kadek Merta Wijaya Department of Architecture, Faculty of Engineering and Planning, Universitas Warmadewa, Indonesia Email: amritavijaya@gmail.com ORCID: https://orcid.org/0000-0002-6237-1582</p>	<p><i>Spatial transformation and building layout of Balinese ethnic dwellings are influenced by the need for residential space and the occupants of the house. The increase in the number of family members in one dwelling impacts increasing the space for living. The development of architectural style as a trend is another factor that changes building layout. This change is a process from the initial state - the spatial and building layout concept of sanga mandala - towards contemporary architecture. These changes are characterized by architectural elements that are subject to change, and the elements that are persistent to change. This research aims to examine the meaning of dualism in the residents of ethnic Balinese residences as a transformation process. The method used in this research is qualitative content analysis, with demographic, economic, and architectural trends approaches and perspectives. The interpretation resulted from the occupants' perceptions of transforming the Balinese ethnic residence in Denpasar. This study's findings are the process of changing the spatial planning and architectural structure of Balinese ethnic houses based on the fundamental concept of dualism in a sanga mandala spatial layout through demographic, economic, and developmental approaches to Balinese architectural trends.</i></p>

Introduction

The spatial development of residential houses in Denpasar is transforming along with the development of Denpasar as an area with increasingly heterogeneous life. The growth in question is the economy, the increasing population, and the growing trend in residential building forms in Denpasar. The increase of people in one family triggers additional space for housing. The addition is a further nuclear family or another family's addition (for example, a married son who brought his wife to live in the main house). Of course, the increase in population is directly proportional to residential land availability (space). Usually, the addition of the

area by expanding the old building can accommodate an increase in the number of family members. This condition is experienced by many people who still live in their parent's house. The spatial transformation of residential arrangements is influenced by the increase in occupants who occupy that space and the need for sustainable thoughts on these residential spaces as a prediction of this demographic aspect (Arvisista and Dwisusanto 2020; Mukiibi and Machyo 2021; Sunarti, Syahbana, and Manaf 2019; Tawayha, Braganca, and Mateus 2019). People with middle to upper economic levels will change their residential buildings' spatial design and structure. This change is in the form of increasing the capacity of residential spaces from one-story to

two-story dwellings. This change does also influence by the trend of residential architecture from traditional to modern conditions. Besides, social status as a society with a high economic level is a factor in transforming space and buildings in Balinese ethnic dwellings. Increasing social and economic status is a factor in transforming spatial and building layouts to show self-identity and space requirements for increasing the number of residents (Kimani 2021; Ibrahim, Saeed, and El-Khouly 2020; Vitasurya, Hardiman, and Sari 2019; Puspita and Rahmi 2020). The development of architectural styles and the use of building materials in Denpasar, which is increasingly rapid, impacts the need for residential architectural styles affected by this trend. Contemporary Balinese building forms colour the development of residential architectural forms in Denpasar. The use of materials that are durable and practical, and easy to obtain is an option, compared to the use of old materials that require periodic maintenance and replacement. This condition does undoubtedly influence by the mindset of the people in Denpasar, which is increasingly modern. The development trend in using more contemporary architectural forms and materials has influenced residential architecture's transformation from traditional to modern (Benslimane and Biara 2019; Lianto et al. 2021; Malik and Hassan 2019; Zoranić 2021). The above phenomenon tends to occur in the original community of Denpasar with the layout of their houses with the *Sanga Mandala* pattern. *Sanga Mandala* is a pattern of residential yards consisting of several building masses, namely *Bale Daja* (buildings for parents or virgins/main building), *Bale Delod* (building for living room), *Bale Dangin* (ceremonies building), *Bale Dauh* (living room or sleeping space for teenage son), *Paon* (kitchen), *Jineng* (rice storage), and a family shrine. (Dwijendra 2020; Dwijendra and Sueca 2019; I. K. M. Wijaya 2020). The building masses form a configuration of a building mass pattern centred on the plaza (*Natah*), with an orientation towards *Kaja* (primary orientation or towards Mount Agung) and *Kangin* (sunrise direction). This dynamic tends to lead to a dualistic pattern of transformation. This dualism emphasizes the homeowner community's mindset to make changes to the architecture of their homes. The perspective of spatial planning and building layout changes is based on understanding the "supreme" and "bad" values. Aspects that have a

luan orientation (high-value orientation) and do correlate with sacredness and ritual tend to undergo minimal changes compared to their opposes, namely *teben* (low-value orientation) or profane and secular (I. K. M. Wijaya 2020). As in the above phenomenon, spatial planning and building structure changes are dualisms with two opposing sides. Spaces or buildings with significant transformations and tend to maintain their spatial existence have a primary or high value in the *Sanga Mandala* spatial layout.

The studies conducted on spatial and building layouts in Bali have focused more on aspects of the meanings and concepts of traditional Balinese architecture. Candrawan stated that Balinese buildings have a the-ecological concept that can animate the building like other living things with souls through ritual activities to create a harmonious relationship between the building and its inhabitants (Candrawan 2020). According to Putra, the spatial layout of settlements in Bali generally has a *Kaja* (North) – *Kelod* (South) orientation axis, with an orientation to Mount Agung for villages in the south. However, there is a variant of orientation based on local cosmology; settlements in eastern Bali have a different orientation from other settlements in Bali, the main orientation (*Kaja*) is towards Mount Bisbis or Seraya (Putra, Wirawibawa, and Satria 2020). Research conducted in Tenganan Pegeringsingan Village shows that the settlement layout has a relationship with its traditional activities, with village roads as the main orient, action, and as a common space for traditional activities (Setiawan, Salura, and Fauzy 2020). The study conception of *natah* in the architecture of Balinese ethnic dwellings is interpreted as a central space which is the orientation of the configuration of building masses; *natah* is a conception of ritual, balance, and safety (I. K. M. Wijaya 2019). Wijaya also stated that the spatial layout of Balinese ethnic dwellings based on the concept of *sanga mandala* has a *luan* and *teben* hierarch; the *luan* zone is marked by the space and mass of the building, which functions as ritual activity; and the *teben* zone as a space for secular activities (I. K. M. Wijaya 2020). The philosophy of traditional Balinese architecture, based on the *Tri Hita Karana*, has not shown compatibility in its implementation even though it has been regulated in local spatial regulations (K. A. P. Wijaya and Wiranegara 2020). So far, studies on the spatial layout of traditional Balinese architecture have discussed the orientation, concept, and meaning

of the spatial layout of traditional Balinese architecture. Studies on the existence of traditional Balinese architectural spatial planning in the dynamics of the development of Balinese ethnic dwellings seem to have been neglected, even though this becomes a thought when local wisdom is amid modern developments.

This study aims to examine the meaning in the development of spatial planning and building layout for Balinese ethnic dwellings that lead to a dualistic mindset with a demographic, economic, and architectural trend perspective. The Balinese ethnic community has a dualistic understanding of spatial planning in the form of orientational thinking and spatial hierarchical thinking. The orientation concept is guided by the *luan qibla* direction – the *Kaja* (mountain) and *Kangin* (sunrise) directions; and the *qibla* direction of *teben* – the direction of *kelod* (sea) and *kauh* (direction of the sunset). The spatial hierarchy concept is guided by the *utama* (high) and *nista* (low) value spatial zones. Demographic influences include adding family members to one Balinese ethnic residential house building additions and spatial changes. An increase in the financial value of occupants affects the desire to make changes to the spatial and building layout. The development trend of Balinese architecture to become contemporary Balinese architecture that is practical and has the resilience of modern building materials compared to traditional materials has resulted in an increasing demand for modern Balinese building forms. The pattern of thought mentioned above forms a dualism of change in the spatial layout of Balinese ethnic dwellings in Denpasar based on the *luan* and *teben* hierarchies and the main and contemptible zoning systems. This research study uses qualitative methods with content analysis of the phenomena found in the field. The perspective of cultural knowledge and the mindset of the people of Denpasar in interpreting the phenomena of this research object.

Method

This study uses a qualitative method of content analysis (Roller 2019; Vespestad and Clancy 2021; Seddighi, Yousefzadeh, and López López 2021; Kansteiner and König 2020; Marvasti 2019). The qualitative practice focuses on studying the meaning of empirical phenomena

based on the empirical sensual, logical, emic, and ethical approaches (Haapanen and Manninen 2021; Galperin et al. 2022). These approaches examine Balinese architecture's demographics, economy, and trends in developing spatial and building layouts of Balinese ethnic houses in Denpasar. The study focuses on the meaning of dualism from the community's perspective (residents of the house) in making changes and transforming their residential buildings' spatial layout and layout. The choice of Denpasar as the research locus is due to the rapid development in the area, so it is interesting to study the local concepts of traditional Balinese architecture in the dynamics of Denpasar development.

The study of the meaning of dualism uses the following research steps: (1) conducting field observations to observe spatial changes using the sanga mandala spatial conceptual guideline; (2) finding more in-depth information regarding changes in the Layout of Balinese ethnic houses through interviews with the owners of the homes; (3) conducting a content analysis of research cases using the perspective of Balinese demographics, economics, and architectural trends; and (4) synthesizing the findings by using the knowledge of the Balinese mindset in looking at the space in the dwelling where they live.

Result and discussion

Sanga Mandala: The concept of Balinese ethnic residential housing in lowland areas

Balinese ethnic residences in lowland areas have typology as residential units limited by each residential unit's barrier wall. Each residential team consists of several mass buildings that form a building mass configuration. The orientation facing the building to the centre in the form of open space or the local term is called *Natah* (Subrata 2020; I. K. M. Wijaya 2019). The building mass configuration is organized based on nine zones with a hierarchy of areas from a low value (*nista*) to a high value (*utama*). The order of the division of these nine zones does base on the cross-orientation of the primary axis, i.e., the ritual and natural axes. The ritual axis is the direction of *Kaja* (high value) and *Kelod* (low value).

In contrast, the natural axis is the direction of *Kangin* (principle sunrise/high value) and *Kauh* (sunset/low value). This cross of the two axes

forms a nine-zone hierarchy pattern, with the most elevated zone being the *utamining utama* and the lowest area *nistaning nista*. The highest spot does reserve for the holy place's function (*Sanggah*), and the lowest zone does an addition for kitchen buildings (*Paon*) (Paramadhyaksa and Dwijendra 2021; Budasi and Satyawati 2021; I. K. M. Wijaya 2020). Order of functions on *sanga mandala* spatial residence based on aspects (1) sacred and profane; (2) gender; (3) social; and (4) rituals. The mass of buildings related to religious and secular aspects is the holy place (*Sanggah*) and the entrance's front room (*Angkul-angkul*). Gender aspects in the form of *Bale Daja* building (building for unmarried or elderly children) and *Bale Delod* (sleeping room for boys), and *Bale Dauh* (room for boys or as a reception room). Social aspects in the form of the *Bele Dauh* building. The ritual elements can see in the *shrine* zone, *lebu* (street in front of the house), and *natah* (open space). Balinese ethnic residential dwellings' layout can be seen in figure 1 below.



Figure 1. Residential layout with *Sanga Mandala* concept

The building's mass configuration and zoning hierarchy do influence by the basic sacred and profane concepts in the figure above. The *utama* (high value) - *nista* (low value) and the idea of *luan* orientation (high value) and *teben* (low value). The dynamics, there are changes in spatial and building layout, and the development of the era in the Denpasar area. The dynamics in question transform spatial and building configurations, usually in the direction and zone of profane, *nista*, and *teben*. The influences of

population growth in one family, homeowners' financial development, and Balinese architectural trends towards the contemporary are the fundamental factors in the dynamic (figure 2).

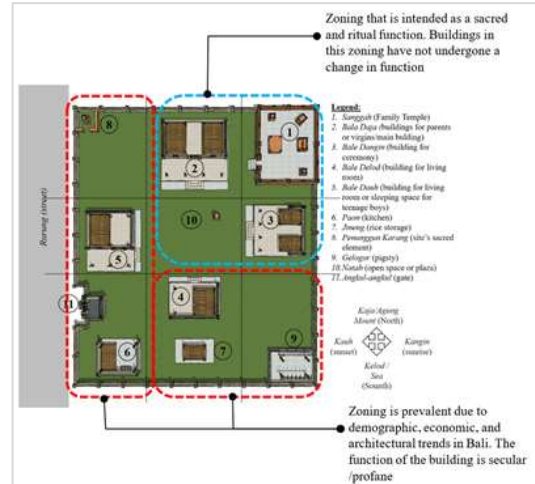


Figure 2. Zoning that undergoes changes and does not change the layout of ethnic Balinese residential

Demographic perspectives on changes in Balinese ethnic residential architecture

The increase in population correlates with space-carrying capacity (Paquet et al. 2019; Rahman et al. 2021; Tong and Qiu 2020). This space's carrying capacity will cause problems if the ability to meet living space needs. The rate of population growth does felt in the family scope. Due to the addition of internal and external family members, it is necessary to provide space and facilities for new family members. In general, the addition of family members is accompanied by spatial and building layout changes. In the Balinese ethnic houses in Denpasar, changes in spatial arrangement and building layout usually occur in the *nista* zone (low-value space), namely in the *Bale Delod* building (building for living room) and *Bale Dauh* (building for living room or sleeping space for teenage sons). This zone undergoes more transformation than the central area (high-value space), namely *Bale Daja* (buildings for parents or virgins/main building) and *Bale Dangin* (building for ceremonies). The addition of space horizontally or vertically occurs in the *nista* zone, while the *utama* zone does not experience additional space (figure 3).



Figure 3. The building has changed due to the addition of the number of family members

In figure 3, the buildings that have changed are *Bale Delod* and *Bale Dauh*. The shape building at *Bale Delod* has two floors because there is an increase in family members. Adding family members affects the use of a more spacious kitchen in *Bale Dauh*. Meanwhile, the *Bale Daja*, *Bale Dangin*, *Bale Saka* (column) *Sanga*, and holy places buildings did not experience additional space due to demographic influences.

Changes in spatial planning and building layout caused by the above demographic influences indicate that the homeowner's mindset is based on the sacredness and religious values. Sacredness is a characteristic of space that pays attention to aspects of order and clear direction and does not cause confusion (Jones 2019; Woods 2021; Baron 2021; Dickens 2021; Marlina 2020). In this case, religiosity is more directed towards the belief in religion, the Hindu-Balinese religious concepts. Directions and zones that correlate with sacredness and religiosity do not experience significant changes. In terms of function and layout, it still maintains its existence as a sacred and religious space. This mindset leads to dualism, which has a hierarchy and opposes two different zones or orientations. When correlated with architectural conceptions related to fixed and changing elements, the elements usually remain in the function of sacredness and religiosity. In contrast, factors that are contrary to the tasks of sacredness and religiosity tend to change.

The Balinese ethnic community to understand spatial changes triggered by the addition of family members in one yard. They consider the space importance factors *utama* (high) and *nista* (low). Rooms with *utama* value will be treated differently from their opposition (*nista* or *teben*). This perception is based on the sacredness of these spaces, which is believed to influence the value and order of secular life. Spatial changes in Balinese ethnic houses usually occur in zones or areas where the value is *nista* or *teben* (profane).

Economic perspectives on changes in the architecture of Balinese ethnic houses

The increasing level of the people's economy is generally accompanied by a more luxurious consumption than everyday needs. The architectural appearance of residential dwellings remains influenced by economic aspects. People with middle to upper economic levels will change the building's layout and appearance to be better than before (Shakeel 2021). The basic concept and principle of humans who always want something better than before (figure 4). Changes in spatial planning and building layout due to economic factors can transform space or buildings. At first, the building's mass was divided based on its function, changing, namely merging several parts into one monolith and multi-story structure (figure 5). Another type is renovating an old building into a more

contemporary facility through materials, ornaments, and finishing that adapt to current conditions (current context) (figure 6).



Figure 4. The shape of the *Jineng* (Barn) building which has undergone a transformation in form and function

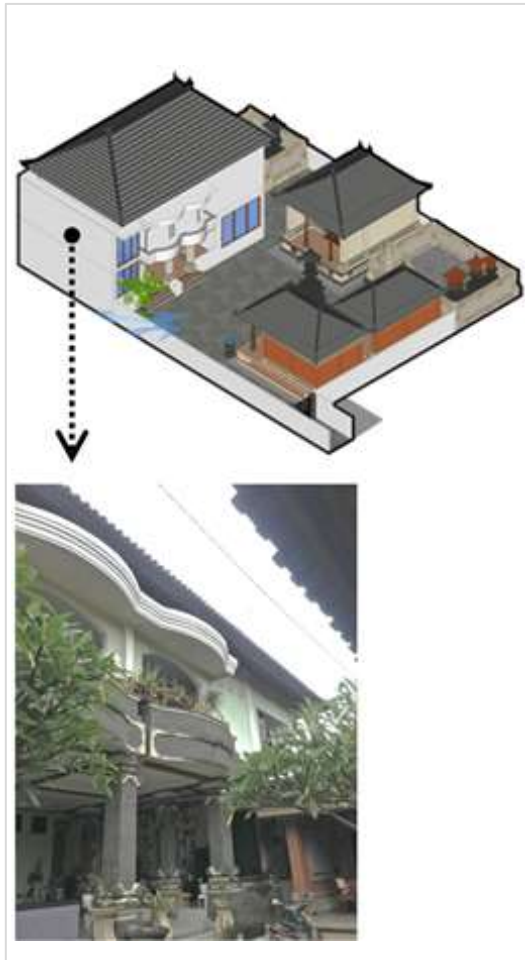


Figure 5. The *Bale Dauh* building has changed to a two-story building



Figure 6. Modern kichen (*Paon*) building facade

The above phenomenon is a form of public perception of the development of architectural trends. With their increasing financial lives, people demand self-identity to be recognized through the appearance of buildings increasingly becoming more modern. Understanding the value of a house is not a place to live but a place to show social identity. This perspective in the spatial Layout of Balinese ethnic houses in Denpasar tends towards a contemporary appearance of buildings and spatial planning. This spatial change from a single function to a complex procedure in one building. Spatial changes usually occur in the *nista* or *teben* zones (low-value spaces). Spatial changes show that the economic perspective does not change the Denpasar community's belief towards the values of freedom: *utama* or *luan* (high-value space). Another phenomenon that shows a strong view of the value of sacredness is that the family shrine buildings, *Bale Daja* and *Bale Dangin*, were renovated to be more magnificent than their initial design with simple architectural formations and minimal presence of ornaments. Thoughts of sacredness and religiosity influence the value of dualism as an impact of economic factors. The human attitude in the sacred and profane zone and the perspective on buildings with godly and primary identities are still believed today. The principle of holy space is directed towards an order from the cosmos' paradigmatic image, while profane is towards disorder (Marino 2022; Turoń-Kowalska 2021). The areas and buildings in the *utama* or *luan* as sacred spaces do not experience

significant changes because they are seen as holy aspects by their occupants.

The perspective of architectural trends in architectural changes of Balinese ethnic houses

The invention of Balinese ornaments and architectural designs and the long-term use of robust finishing materials are the foundation for Denpasar's "colourful" Balinese ethnic architecture. Using durable materials in *Bale Daja* and *Bale Dangin* buildings efficiently uses maintenance funds. At first, the *Bale Daja* and *Bale Dangin* buildings still used materials obtained from the surrounding environment. These materials include fibers, bricks, clay, and the use of wood for construction. However, in the current development, these materials have been

replaced by modern and durable materials. Building ornaments that were initially still simple without a *jolt* of ornamentation, but now the use of decorations in the building's appearance dominates these buildings. Ornaments become the identity of the homeowner (figures 7, 8, and 9).

The influence of architectural trends among Denpasar people forms a dualistic mindset between buildings in the *utama* zone or *luan* (high-value space) and buildings in the *nista* or *teben* area (low-value rooms). Facilities in the leading site (*Bale Daja* and *Bale Kangin*) are getting more attention as magnificent and luxurious buildings. Meanwhile, buildings in the *nista* or *teben* zone are not given special treatment.

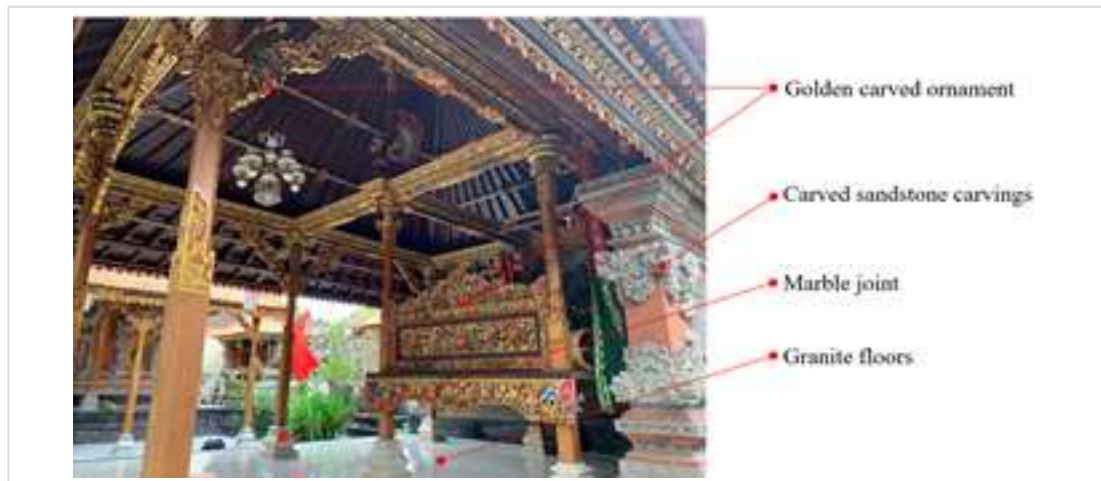


Figure 7. Implementation of modern materials, colours, and ornaments in *bale delod* building

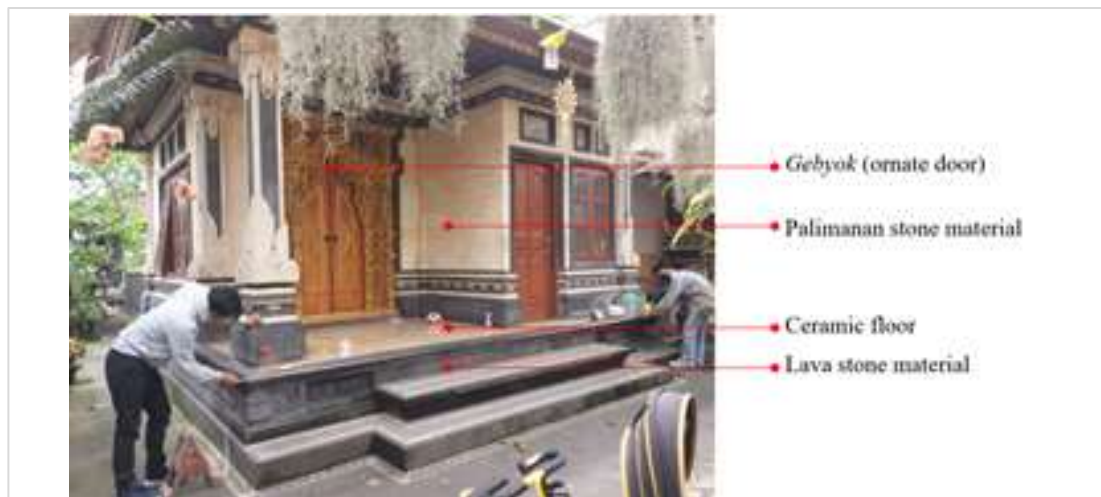


Figure 8. Implementation of modern materials and ornaments in *paon* building

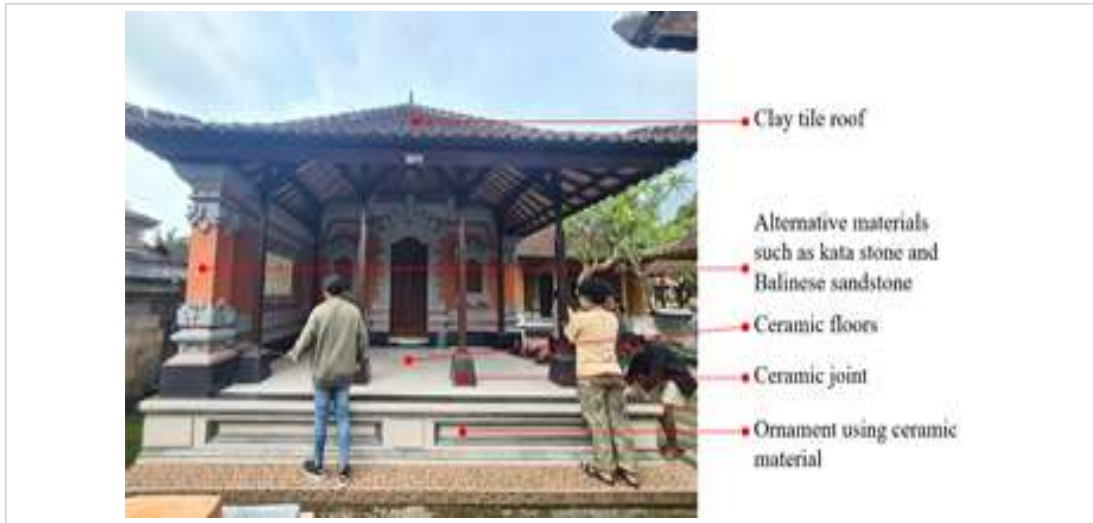


Figure 9. Implementation of modern materials in *bale dauh* building

Synthesis: The perspective of dualism as the basis for harmony in space

The influence of demography, economy, and Balinese architectural trends forms a new perspective in the spatial layout of Balinese ethnic houses in Denpasar. There was a transformation of spatial planning and building layouts in the yards of Balinese ethnic houses in Denpasar through spaces or buildings and the merging of several building masses into one structure. Usually, this happens in areas or zones that are *teben* or *nista* (low-value spaces). Buildings and spatial planning in the *luan* and *utama* zones (high-value spaces) underwent no significant transformation. *Bale Daja* and *Bale Dangin* buildings have an existence as buildings with an "Utama" function. Dualism from the perspective of demography, economy, and architectural trends on the spatial and building layout of Balinese ethnic houses in Denpasar focuses on sacredness and religiosity. The contrast between the *utama* room (high value) and *nista* (low value) in the *sanga mandala* layout is still clearly visible. Buildings in *nista* (low-value) areas tend to change - adding facilities or combining some buildings with other facilities. The use of ornaments and building materials is more modern but still shows Balinese architecture's identity. This dualism is seen in the contrast between spatial planning and building layout changes. Spaces that experience a change in function (addition or merging of freedom) are more common in the *nista* or *teben* (low-value) zones. Building layouts made more elegant and luxurious while still paying attention to traditional

principles usually occurs in the *luan* or *utama* (high value) zone. The Transformation phenomenon is a form of dualistic thinking that distinguishes between sacred and profane spaces and buildings. The contrast of space as part of dualism through the embodiment of buildings, namely (1) modern buildings in the *nista* zone (low value) and (2) buildings that have traditional values, are in the *utama* zone (high value) (figure 10).

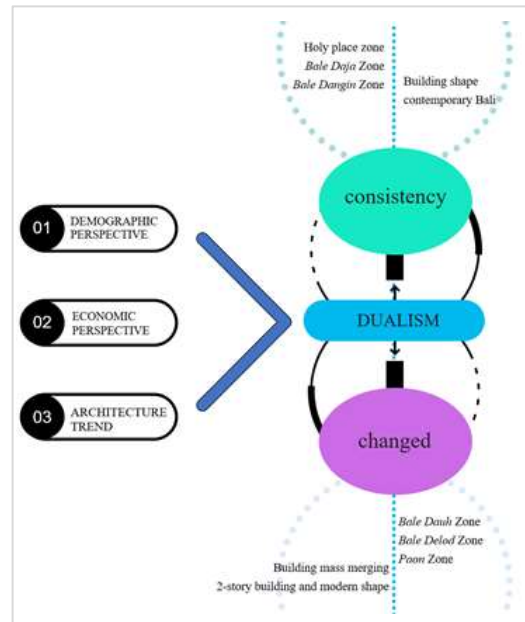


Figure 10. The perspective of dualism in changes in spatial planning and building arrangements for Balinese ethnic dwellings

Spatial transformation based on values is the perspective of the harmonious dualism of space. The concept of sacred space is interpreted as order, hierarchy, and manifestation of the cosmos' paradigmatic image. Meanwhile, the profane space opposes the holy, such as chaos or disorder (Eliade 2002). When examining the spatial and building layout transformations in Balinese ethnic housing settlements in Denpasar, it was seen that the profane or *nista* space had undergone significant changes compared to the sacred or *utama* space. The sacred space or *utama* space maintains its religious concepts and functions. The transformation process shows the harmonization of the dualism of space in responding to these spatial changes. The core of space - in the form of sacred space - shows its existence, and the identity of its dualism (sacred and profane spaces) becomes more explicit, it does not negate or defeat each other, but it strengthens each space's identity.

Conclusion

The value of the sacredness of space manifested in the form of latitude and orientation of *luan* or *utama* becomes the basis for shaping the cosmic layout of Balinese ethnic houses. This sacred value is also the basis for ethnic Balinese homeowners to make spatial and building transformation changes. The *sanga mandala* layout is formed from the intersection of natural and ritual axis orientation; this is a fundamental guideline for ethnic Balinese homeowners. The understanding of the basic concept of orientation is dualistic. The dualistic means that in a *sanga mandala* spatial layout, there are two zones in general, namely the *utama*/sacred zone and the *nista*/offensive zone. Spaces that change is of *teben/nista*/profane value.

In contrast, the *luan/utama*/sacred spaces do not experience spatial changes. Only changes in the shape of the building towards new spatial functions are still maintained today. The increasing number of residents in the house (demographic aspect), the increase in public finance (economic part), and the development of contemporary Balinese architectural trends are the basis for changes in these houses' spatial and building layouts. The changes are dualistic. The space that undergoes significant changes occurs in the *teben*/offensive zone while maintaining the

cosmos' function, form, and traditional concept is the *luan*/sacred space. This dualism does not lead to the idea of negating so that it becomes monism but mutually reinforces and harmonizes each opposition space.

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Author(s) contribution

I Kadek Merta Wijaya contributed to the research concepts preparation, methodologies, investigations, data analysis, visualization, articles drafting and revisions.

I Nyoman Warnata contribute to the research concepts preparation and literature reviews, data analysis, of article drafts preparation and validation.

Ni Wayan Meidayanti Mustika contribute to methodology, supervision, and validation.