

Sanga Mandala Concept Study in Balinese Traditional Architecture

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Abstract. *Sanga Mandala* is a concept that divide the layout of lowland Balinese house into nine parts starting from *utama ning utama* to the *nista ning nista* and each of these areas has its own function and activity. The intersection of two main axes, the ritual axis and the natural axis, forms the concept of *Sanga Mandala*. These axes have two poles called *Kaja-Kelod* (mountain-sea direction) and *Kangin-Kauh* (sunrise-sunset direction). This study aimed at examining the philosophy of *Sanga Mandala* conception in Balinese Traditional Architecture using descriptive qualitative method. Data collection was carried out by literature study of related scientific journals. The results showed that there was a pattern of meaning of *Kaja-Kelod* (mountain-sea direction) and *Kangin-Kauh* (sunrise-sunset direction) in the conception of zoning, transformation of spaces and buildings, orientation of the building mass, as well as producing a pattern of meaning in zoning and ritual functions as the most important part in the Balinese traditional architecture

1. INTRODUCTION

From the 8th century to the 15th century, Bali has intensively experienced changes and developments in its traditional and cultural traditions. Architecture, which acts as a place for cultural activities, can be said to have undergone changes. Traditional Balinese architecture is one of the archipelago cultural architectures that has grown to follow the dynamics of the times. Every era has influenced changes in the development of Balinese architecture, since the era of the ancient Balinese kingdom, the era of the Balinese Kingdom under the influence of Majapahit, the colonial era, the era of independence, until now the era of globalization. Traditional Balinese architecture is one of the ethnic architectures, which is part of the richness of architecture in the archipelago. Traditional architecture is part of a culture whose birth is motivated by religious norms, local customs and based on local natural conditions [1]. Balinese architecture has maintained and developed three types of architecture, namely: Heritage Architecture, Traditional Balinese Architecture, and non-traditional architecture in the style of Balinese Traditional Architecture [2]. In traditional Balinese architectural knowledge, there are two conceptions related to the arrangement of building mass patterns and residential sites. These two kinds of concepts have been applied and applied in various complex areas of sacred places and other residential areas that are secular and worldly. Both of these concepts are known as the *Tri Mandala*

and *Sanga Mandala* conceptions, both of which are positioned as guidelines in the arrangement of space and building mass in the site area.

Research about Balinese architecture and *Sanga Mandala* conception itself has been done before. Research by Howe and Leopold EA entitled “An Introduction to the Cultural Study of Traditional Balinese Architecture”, found that Balinese culture is animistic if what is meant by this is objects which are usually considered inanimate are by the Balinese conceived to be animate. Balinese representations in building ideas by body and soul, of illness and death, of birth and life are all formally congruent with this fundamental feature of their thought. In short of the principles of order which regulate the location and construction of buildings are identical to those which structure other domains of their social and culture life [3]. Research by Suryada dan Gusti Agung Bagus entitled “Konsepsi Tri Mandala Dan Sanga Mandala Dalam Tatanan Arsitektur Tradisional Bali”, found that there are two conceptions in Balinese people's beliefs *Tri Mandala* and *Sanga Mandala*. Both of these conceptions tend to position the direction of mountains, plateaus, or sunrise as the main direction that is sacred, as for the direction of the sea, the lowlands, and the sunset are interpreted as profane despicable directions [4]. Research by Junianto entitled “Implementation of “Sanga Mandala” Concept in Patirtan Watugede-Singosari.”, found that the traditional concept of environmental arrangement is based on the harmony and balance of relations between humans and nature, the concept of *Sanga mandala* as the concept of traditional spatial planning, contributes to the preservation and sustainability of the environment [5]. Research by I.K.M Wijaya entitled “The Local Wisdom Study of Luan And Teben Concept on Balinese Ethnic Houses (Case Study: Balinese Ethnic Houses in Denpasar, Bali).”, found that the position and direction of this shrine serve as the starting point in determining the luan and teben of the Balinese ethnic residential housing in the lowland. The dynamics of its development is that the concept of luan and teben are still an integral guideline of the Balinese ethnic house's layout amid its contemporary development [6]. Research by Suyoga entitled “Ruang Ideal Bali dalam Tekanan Globalisasi”, found that the development of the understanding of space in Balinese architecture is strongly influenced by the theology, philosophy, and concepts of Hinduism, this is the true existence of Balinese spatial planning is the grounding of Hindu ideology. Hindu beliefs such as: tat twam asi, bhuana agung – bhuana alit, panca maha bhuta, tri hita karana, tri bhuwana, purusha-pradhana, and others, become practical principles of architecture, such as tri mandala, sanga mandala, tri angga, sukat ‘size’, natah, various decorations, colors, textures and more [7].

The *Tri Mandala* conception is a traditional architectural conception that is widely applied to the flattening of Hindu temple areas in Bali until now. This conception is basically the result of a combination of two traditional conceptions with the character of binary opposition (Balinese: *Rwa Bhineda*) which is known in Balinese Hindu culture, namely the inner-outer concept and the sacred-mundane concept [8]. The *Tri Mandala* conception is divided into 3 areas or zones, namely *nista mandala* or *jaba sisi* as the outermost area, *madya mandala* or *jaba tengah* as a transitional area or middle area, and *utama mandala* or *jeroan* as the most sacred area [9]. The next conception is the *Sanga Mandala* conception, the *Sanga Mandala* conception is a philosophy that is the basis for the spatial layout of Hindu society in Bali. *Sanga Mandala* is a concept used in determining the orientation of the direction of community settlements, the layout of residential neighborhoods and public spaces. In the residential environment, *Sanga Mandala* is applied by dividing the area into nine parts starting from *utama ning utama* to the *nista ning nista* and each of these areas has its own function and activity [10]. This study aims to determine the concept of *sanga mandala* in Bali and to find the philosophical meaning of the *sanga mandala* concept that is applied to traditional Balinese architecture.

2. METHOD

This research uses descriptive qualitative method. Qualitative research is research in which the researcher is placed as a key instrument, data collection techniques are carried out by combining and

inductive data analysis [11]. Qualitative methods are used by researchers because this study examines phenomena in an atmosphere that occurs naturally, not in controlled or laboratory conditions. In addition, qualitative methods were chosen because researchers needed to conduct research directly into the field. That way, researchers will get complete data from several observed behaviours in descriptive form.

The object of research is the *Sanga Mandala* concept which is applied to Balinese Architecture. Data collection was carried out by literature study of related scientific journals. Data collection through literature study is intended to obtain several theories and approaches in dissecting and solving research problems. As a qualitative research, the study analysis uses qualitative analysis with details: examining the *Sanga Mandala* conception applied to Balinese architecture, both in terms of its definition and philosophy.

3. RESULTS AND DISCUSSION

3.1. Balinese Traditional Architecture

In understanding Balinese Traditional Architecture, buildings are considered to have equality with humans, therefore the building consists of a soul and a physical body. The animating soul is analogous to its meaning, while the form of the physical body is its expression. The meaning as the soul of architecture has a very important position and becomes a philosophical foundation for creating an architectural form or image [12]. Building follows the Tri Kona cycle: *Utpeti* or creation, *Sthiti* or utilization, and *Pralina* or destruction, as is the case with humans who experience birth, life and death. Traditional Balinese architecture is imbued with and based on the teachings of Hinduism. This inspiration is reflected in three things. (1) In the traditional development process: religious ceremonies (*sarana, mantera, rajah*), determination of dimensions and distances (Hindu gods), determination of good or mature days of ayu (*Jyotisa*); (2) In the spatial and building layout: *tri mandala* and *sanga mandala* patterns (*Tri Loka* and *dewata nawa sanga* concepts), *Natah* patterns (a combination of *akasa* and *pretiwi*), *hulu-teben* orientation; (3) In the form of buildings: names of selected sizes (*bhatara asih, prabu anyakra negara, sanga padu laksmi*), symbols and decorative patterns (*Acintya, Kala, Boma, garuda-wisnu, swan, etc.*), Balinese Traditional Architecture as an embodiment of space from generation to generation can continue the cultural values contained in society in accordance with their views and ideals.

In Balinese Traditional Architecture, there are three classifications of building functions, each of which has a hierarchy of meaning as follows, namely [13]:

- a. The hierarchy of the main meaning of a building that functions for worship is basically as a place of worship and worship to God and ancestors in order to strengthen and empower this life so that people in this life become better and more useful. This place of worship consists of:
 - Pura Kawitan and Sanggah as media to develop harmony in the family
 - Pura Kahyangan Desa as a medium to develop harmony in the territorial environment of the village.
 - Pura Swagina as a medium for developing professional harmony.
 - Pura Kahyangan Jagat as a medium to develop regional and universal harmony.
- b. The hierarchy of the meaning of intermediate building which functions as housing for shelter with all its activities and interactions so that humans can develop their potential and profession professionally and optimally in harmony, harmony and balance. This residence consists of:
 - Griya as a dwelling for the clergy or sulinggih or priests profession.
 - Puri as a residence for government leaders or authorities.
 - Jero as shelter for servants or government officials.
 - Umah as housing for the general public such as farmers or traders.
- c. The hierarchy of the meaning of building defiance which functions socially as a forum for carrying out activities in groups / collectively in a particular territory, both at the environmental and village

levels. This building will function more as public facilities and socio-cultural facilities for community members, the types are as follows:

- *Bale Desa* functions as a forum for socio-cultural and community activities and interactions in order to develop harmony at the village territorial level.
- *Bale banjar* functions as a forum for socio-cultural and community activities and interactions in order to develop harmony at the level of the banjar environment.
- *Bale teruna-teruni* as a forum for activity, creativity and socio-cultural and community interaction in the context of developing harmony and fostering the younger generation.
- *Bale subak* as a forum for socio-cultural and community activities and interactions in the framework of developing harmony and welfare in agriculture.
- *Pasar* as a forum for social, cultural and economic interaction and activity in the framework of developing village welfare.
- *Beji* as a forum for socio-cultural and community activities and interactions in the framework of developing village harmony and sanitation.
- *Bale bendega* as a forum for socio-cultural and community activities and interactions in the framework of developing harmony and welfare by fishermen.
- *Bale sekee* is functioned by non-formal professional associations

3.2 Sanga Mandala Conception

In the view of the traditional Balinese conception, *Rwa Bhineda*, two characters of the binary opposition are sacred and worldly which divides the elements in the universe, the human body, as well as the spatial and architectural layout of two types of elements that have sacred and worldly values. This sacred-worldly view also gave birth to other conceptions regarding the direction of the sacred head position and the direction of the position of the feet which have worldly value. This derived conception is known in local Balinese terms as the *Ulu-Teben* (high-low area) conception. Another conception regarding the sacred direction and worldly direction in the cultural order of the Balinese Hindu community is the conception of the pair of *i* (mountain-sea direction) and *Kangin-Kauh* (sunrise-sunset direction). This conception is more of an applied conception that is widely applied in the cosmic orientation of the island of Bali in a macro, spatial layout, and orientation for various traditional Balinese buildings.

In the view of Balinese Hindu society, the direction of the mountains and the direction of the sea as well as the direction of the sunrise and sunset are each interpreted as a direction that is sacred and has worldly values. These four directions have their own names in local Balinese terms, namely *kaja* for the direction of the position of the mountain which is in opposition to the *kelod* for the direction of the sea position and *kangin* as the direction of the rising sun and *kauh* as opposed to the direction of the sunset. This understanding also gave birth to two imaginary axes formed from two pairs of directions in Balinese Hindu culture, namely the natural *kaja-kelod* orientation axis for the pair of mountain-sea directions and the *kangin-kauh* ritual orientation axis for the sunrise-sunset direction pair [14].

The orientation of the *kangin-kauh* ritual can be translated directly as an east-west axis. This kind of equality is applicable everywhere in Bali. The direction of the sun rising as the *kangin* direction will always be equated as the eastern horizon, while the direction of the sun setting or the direction you will still refer to the west horizon. A different thing applies to the natural orientation axis of the *kaja-kelod* as a pair of mountain-sea directions. The position of the mountain ranges that line from east to west in the central part of Bali Island, causes the island of Bali to appear dichotomized into two different regions, namely the northern part of Bali which is in the north of the mountains and the southern part of Bali which is located in the south of the mountain range. The understanding of the existence of the northern part of Bali and the southern part of Bali has in turn led to the birth of different views regarding the *kaja-kelod* axis between the Balinese Hindu community in the two regions.

For the people of northern Bali, such as residents who live in the district of Buleleng and its surroundings, the direction of the *kaja* or the direction of the mountains is equated with the south,

while the direction of the *kelod* as the direction of the sea is positioned as the opposite direction, namely north. The geographic condition of the northern part of Bali, which is north of the mountain ranges and in the south of the sea (Bali Sea), has become the guideline for determining the direction of *kaja-kelod* as it is until now. The contrast generally applies to residents in the southern part of Bali. The Balinese Hindu community who lives in this area will generally point to the north as the direction of the *kaja* and the south as the direction of the *kelod*. The position of the southern part of Bali, which is south of the mountains and in the north of the sea (the Indonesian Ocean), is a conceptual platform that is used as the basis for determining the direction of this kind of *kaja-kelod*. The areas included in the southern part of Bali are Denpasar City, Badung Regency, Tabanan Regency, Gianyar Regency, Klungkung Regency, parts of Jembrana Regency, Bangli Regency, and Karangasem Regency. This kind of different understanding causes these two regions to also have different views about the sacred value of the world for the north and south. Other differences can also be seen in the arrangement of the mass of the holy buildings and the ritual orientation in the two regions. The people of southern Bali generally use the east, north, and northeast directions as sacred orientations for various rituals and the direction of the position of sacred buildings. As for the people of northern Bali generally make the east, south and southeast directions as orientations that have sacred values.

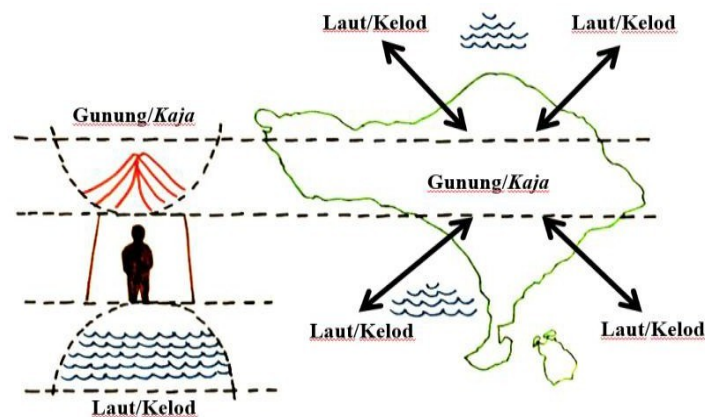


Figure 1. The dichotomy of the Kaja-Kelod Orientation Direction for Balinese people.
Adopted from Gelebet (2002)

Apart from the things that have been stated above, there are also several areas in Bali that determine the direction of their natural orientation axis which is different from the two views above. This difference is generally related to the characteristics of the location of the mountains or highlands which are used as a reference for sacred value directions for these areas.

The term *Sanga Mandala* is derived from two words in Sanskrit, namely *sanga* and *mandala*, each of which has its own characteristics. *Sanga* has the meaning of 'number nine', while *mandala* can be interpreted as 'region' or 'zone'. The combination of these two words then forms the term *Sanga Mandala* which is the name of a popular conception known in traditional Balinese architectural arrangements [15]. The conception of *Sanga Mandala* is basically the result of combining the *Kaja-kelod* and *Kangin-kauh* conceptions which are known as the natural axis and rituals of the Balinese Hindu community. The two conceptions are then inserted again with a view of the existence of a middle position (Bali: *madya*) as a transitional or transitional area.

The area with the natural axis of the *kaja-kelod*, which was previously only divided into sacred and profane zones, eventually developed into three zones, namely the *kaja* zone which has sacred or main value (Bali: *utama*), the middle zone which has medium value (Bali: *madya*), and a zone of profane value (Balinese: *nista*). In the area with the *kangin-kauh* ritual, which was previously only differentiated as sacred and profane zones, in the end it also developed into three zones, namely the sacred (*utama*) kangin zone, the middle (*madya*) zone, and the profane (*nista*) kauh. The application of the conception of the two axes simultaneously intersect with each other in the cultural order and

traditional Balinese architecture, ultimately resulting in the concept of dividing the area into nine zones or *Sanga Mandala*. The three zones formed from the natural axis are crossed with three zones that occur from the ritual axis giving birth to nine zones which have their own values related to the level of sacredness and profanity.

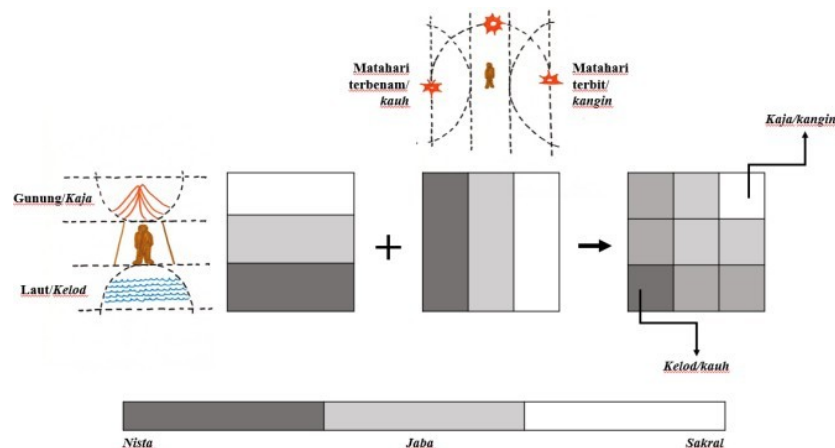


Figure 2. The intersection of the *Kaja-Kauh* and *Kangin-Kauh* axes that forms the *Mandala Sanga*.
Adopted from Gelebet (2002)

Based on the picture above, it can be seen that the results of the crossing of the two axes form nine zones that have their respective names. The nine zones can be sorted clockwise as *kaja* zone, *kaja-kangin* zone, *kangin* zone, *kelod-kangin* zone, *kelod* zone, *kelod-kauh* zone, *kauh* zone, *kaja-kauh* zone and middle zone. The zone or area of *kaja*, *kaja-kangin*, and *kangin* is defined as the zone of primary or sacred value. The *kelod-kangin*, center, and *kaja-kauh* zones or areas are declared to be of intermediate or intermediate value. The zone or area of *kelod*, *kelod-kauh*, and *kauh* is positioned as a zone of insult or profane value. If we take a closer look at the nine areas, it will be understood that the *kaja-kangin* zone is the most sacred value zone, the middle zone is the middle value zone, and the family zone is the most profane value zone. In detail, the profane values of the nine zones can be sorted from the most sacred to the most profane, as follows:

Table 1. *Sanga Mandala Area*

No.	Area	Meaning of Area <i>Sanga Mandala</i>
1	<i>Utama Ning Utama</i>	Areas that have the main character (holy place) so must be present in every environment created by Human.
2	<i>Utama Ning Madya</i>	Used by home owners / parents (male and female) as a place of activity and rest.
3	<i>Utama Ning Nista</i>	Open space that functions as a garden/nature.
4	<i>Madya Ning Utama</i>	As a preparation area when holding traditional / religious ceremonies and a place for discussion between family members and guest.
5	<i>Madya Ning Madya</i>	An open space that is used as a welcoming area for guests during religious and traditional ceremonies and family.
6	<i>Madya Ning Nista</i>	As a resting or relaxing area for boys and girls.
7	<i>Nista Ning Utama</i>	Open space that is used as a garden/nature/door come in
8	<i>Nista Ning Madya</i>	This area can be used as a cleaning / kitchen, storage /

barn or a building as a place to rest for boys

Usually used as a kitchen, bathroom or the entrance to the yard

The understanding of the concept of *Sanga Mandala* in the next section is widely applied as the concept of structuring the area of buildings in Bali, such as in the temple complex area, traditional Balinese residential areas, modern residential areas, *bale banjar* areas, office areas, and school areas. The concept of *Sanga mandala* is generally applied to traditional settlement areas in Bali which have a plain character. Traditional settlement areas located in mountainous or coastal areas generally apply the concept of other area arrangement patterns, such as the *ulu-teben* pattern.

4. CONCLUSION

In understanding Balinese Traditional Architecture, buildings are considered to have equality with humans, therefore the building consists of a soul and a physical body. Traditional Balinese architecture as the embodiment of space from generation to generation can continue the cultural values contained in society in accordance with their views and ideals. The concept of *Sanga Mandala* is a philosophy that forms the basis for the spatial layout of Hindu society in Bali. *Sanga Mandala* is a concept used in determining the orientation of the direction of community settlements, the layout of residential neighbourhoods and public spaces. Another conception regarding the sacred direction and worldly direction in the cultural order of the Balinese Hindu community is the conception of the pair of *Kaja-Kelod* (mountain-sea direction) and *Kangin-Kauh* (sunrise-sunset direction). The land that applies the Sanga Mandala conception will form nine plots, each of which contains certain land values. The nine values are *utama ning utama*, *utama ning madya*, *utama ning nista*, *madya ning utama*, *madya ning madya*, *madya ning nista*, *nista ning utama*, *nista ning madya*, and *nista ning nista*. The nine plots are formed from the intersection of two types of land division into three plots (main plot, middle plot, and nista plot) which use the orientation of the mountains-sea (*kaja-kelod*) and sunrise-sunset (*kangin-kauh*) axes simultaneously.

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REFERENCES

- [1] Gelebet, I N. dkk. *Arsitektur Tradisional Daerah Bali*. Denpasar: Proyek Inventarisasi Kebudayaan Daerah Kanwil Depdikbud Propinsi Bali. 1982.
- [2] Putra, I G.M. *Kumpulan Materi Arsitektur Bali*. Jurusan Arsitektur Fakultas Teknik Universitas Udayana. 2009.
- [3] Howe, L. E. 1983. An introduction to the cultural study of traditional Balinese architecture. *Archipel*, 25(1), 137-158.
- [4] Suryada, I., & Bagus, G. A. 2018. *Konsepsi Tri Mandala Dan Sanga Mandala Dalam Tatanan Arsitektur Tradisional Bali*.
- [5] Junianto, J. 2018. IMPLEMENTATION OF "SANGA MANDALA" CONCEPT IN PATIRTAN WATUGEDE-SINGOSARI. In *3rd International Conference of Graduate School on Sustainability (ICGSS) 2018*.

- [6] Wijaya, I. K. M. 2020. The Local Wisdom Study of Luan And Teben Concept on Balinese Ethnic Houses (Case Study: Balinese Ethnic Houses in Denpasar, Bali). *Local Wisdom: Jurnal Ilmiah Kajian Kearifan Lokal*, 12(2), 156-166.
- [7] Suyoga, I. P. G. 2017. Ruang Ideal Bali dalam Tekanan Globalisasi. *Dharmasmrti: Jurnal Ilmu Agama dan Kebudayaan*, 17(1), 24-30.
- [8] Patra, M. S. 1985. *Hubungan seni bangunan dengan hiasan dalam rumah tinggal adati Bali*. Balai Pustaka.
- [9] Conrady, Roland. Trends and Issues in Global Tourism. London: Springer. 2007.
- [10] Dwijendra, N. K. A. 2009. *Arsitektur & kebudayaan Bali kuno*. Kerjasama CV. Bali Media Adhikarsa [dan] Udayana University Press.
- [11] Sugiyono, D. 2010. Metode penelitian kuantitatif dan R&D. *Bandung: Alfabeta*.
- [12] Siwalatri, N. K. A. 2015. Makna Sinkronik Arsitektur Bali Aga Di Kabupaten Buleleng Bali. *Program Doktor Jurusan Arsitektur Fakultas Teknik Sipil Dan Perencanaan. Surabaya: Institut Teknologi Sepuluh Nopember*.
- [13] Goris, R., Basuki, S., & Atmaja, J. 2012. *Sifat religius masyarakat pedesaan di Bali*. Udayana University Press dan Pusat Kajian Bali, Unud.
- [14] Gelebet, I Nyoman, dkk. *Arsitektur Tradisional Daerah Bali*. Denpasar: Badan Pengembangan Kebudayaan dan pariwisata Deputy Bidang Pelestarian dan Pengembangan Budaya Bagian Proyek Pengkajian dan Pemanfaatan Sejarah dan Tradisi Bali. (2002).
- [15] Ramseyer, U., & Tisna, I. G. R. P. (Eds.). 2001. *Bali: Living in Two Worlds:[a Critical Self-portrait]*. Schwabe.