Redefining the concept of Tri Mandala cosmology in the spatial organization of resort hotel in Bali

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Abstract. Protecting local culture is one of the sustainable development principles. Balinese Architecture is an embodiment of the cosmological Balinese Hindu concept, which is the local community’s way of life so that it needs to be preserved. The application of the Tri Mandala concept in modern building design through the neo vernacular architecture approach is a way to preserve Balinese culture. This paper is an exploration of the implementation of the cosmological traditional concept of Tri Mandala in the spatial organization of a modern resort hotel without changing its true meaning. The approach used is trough defining the traditional meaning of Tri Mandala and interpretation into the modern function context in resort hotel design in Kuta Bali. As a result, Tri Mandala divides space into three parts, namely Utama, Madya, Nista which means sacred, neutral, less sacred is realized in the zoning organization of private as unit rooms, public area as lobby, restaurant, drop off, and service area as kitchen and parking lot.

1. Introduction
Applying traditions and thoughts based on local beliefs in architectural design is a way to protect the local culture. This paper tries to explore the application of local values in the design of new buildings in Bali, considering that Bali has a rich but unique local culture, including those manifested in the architectural character of buildings. This discussion is important as the massive construction of modern buildings that leads to the fading of local values. Resort hotels are of particular concern because they are functionally aimed for tourists, so that they have the potential to introduce Balinese local culture. Thus, applying local culture to design through the Neo-vernacular approach in a modern resort hotel designs is an effort to preserve Balinese culture while maintaining modern design.

Neo-vernacular architecture does not only employ physical elements that are applied in modern forms but also non-physical elements such as culture, mindset, belief, layout, religion and others [1]. The appearance of Neo vernacular architecture is generally a combination of traditional elements in new forms and technologies with same or different meanings [2]. Balinese traditional architecture is the manifestation of local philosophy which is originated from the Hindu lesson. These values are called Tri Hita Karana, that is the concept of three sources of a harmony in life. Between humans, humans and nature, as well as humans and their God which is realize through people’s activities. So that the concept of Balinese Architecture is the embodiment of the relationship of God, man, and nature [3].

One of the elements of Balinese architecture that can be applied in the design of modern resort hotels is the Tri Mandala spatial pattern, which is related with Tri Hita Karana. Tri means three, and Mandala is zone [4]. This concept of traditional Balinese Architecture mainly rules the division of space and
zoning. It divides human living area into three zones, namely *Utama Mandala*, the most sacred zone that located in the *Kaja* (Balinese of mountain) direction, *Nista Mandala*, the less sacred zone that located in the *Kelod* (Balinese of sea) direction, and *Madya Mandala*, the transition zone that located between *Utama* and *Nista* [5]. The orientation of *Utama* is always to the mountain or to the east where the sun rises as the representation of sacredness, and conversely the *Nista* is oriented to the sea or sun sets (west) as the representation of impropriety [6]. This spatial division of is always applied in the spatial organization of traditional houses and temples in Bali. But can this concept be applied to the design of a hotel building which is a modern-public function? This paper intends to discuss the extent to which the *Trimandala* concept should be redefined when applied to the design of a modern building. This paper is a case study of designing a resort hotel in Bali, where the creation of an atmosphere that refers to the local context will affect user experiences.

2. Materials and methods
This study is a conceptual analysis for the design of a Resort Hotel in Bali which is located on Jalan Pantai Kuta, Badung Regency, Bali. The site is a rectangular extending north-south, with the front facing west (Figure 1 and 2). The study was conducted using a qualitative method with analytical procedures following the principles of design thinking, which is a methodology that oriented towards finding solutions to solve problems. This research employs four of the five steps of design thinking, i.e., empathize, define, ideation, and prototype. The DT mindset fits perfectly with qualitative research, where the researcher provides insights based on user experiences [7].

Most of the data obtained through observation, and supported by secondary data from literature as well as documents of local regulations. Descriptive analysis was carried out through in-depth understanding and interpretation of the *Tri Mandala* concept. Likewise, the interpretation of the existing conditions of the site and its surroundings, and the most important thing is the activities that will be accommodated in the site. Each activity is then interpreted in terms of its meaning and position in the *Tri Mandala* concept.

In the analysis of the *Tri Mandala* concept, site location is an important aspect. The site is located at Jalan Pantai Kuta, Badung Regency, Bali. The site is oriented east-west, where the east is facing the sea and west is the orientation to the mountain, as shown in Figure 1. The shape, position and orientation of the site will be the basis for the analysis of the *Tri Mandala* concept interpretation on the design of a resort hotel.

![Figure 1. Site location.](image-url)

3. Results and discussion

3.1. Site orientation and zoning division based on *Tri Mandala* concept
*Tri Mandala*, the traditional spatial arrangement, divides space into three zones, which are *Utama, Madya*, and *Nista*. *Tri Mandala* concept is always employed by the Hindu-Bali community in spatial arrangements, especially for homes and temples [6]. These three zones are orientated to *Kaja* (Mountain)
– Kelod (Sea) or the axis (east – west) [8]. The pattern of the direction is also based on local’s spiritual belief. In Balinese Hindu people believe that the mountain is the place for God and the holy spirits (Utama), while the sea is the place for evil or dirty spirits (Nista). In the geographic context of Bali Island, Mount Agung is believed as the main Kaja or Utama orientation, and the sea around is the orientation of Nista. In the Balinese tradition, when they held a community gathering, the most senior members are always sat at the sunrise side. Sunrise believed has high religious value as the sun is the beginning of the day and means the life begins with new energy, while west region where the sunsets means the end of the day and has less religious value [9]. This belief is manifested in the spatial organization of land for living where every site is divided into three area based on its the sacredness (Figure 2) [3].

![Figure 2. Tri Mandala spatial organization.](image)

Based on the location and orientation of the site, Tri Mandala divides the site into three areas. As shown in Figure 1, The site is oriented east-west, where the east is facing the sea and west is the orientation to the mountain. It means that the Kaja or Utama is the back part of the site, and the Kelod or Nista is the front side near the street, and Madya is located in between. In the zoning division principles, the part closest to the street (the front) is generally a public area because it is easily accessible, and conversely the farthest from the street (the back) is a private area. It means that the Utama is corresponds with the private part, and the Nista with the public area of the site (Figure 3).

![Figure 3. Tri Mandala organization of the site.](image)

3.2. Tri Mandala: the original meaning and its redefinition in the new function

3.2.1. Utama Mandala. The most sacred area where the holy buildings are located such as temples. Utama Mandala is believed to be an area where the relationship between man and God is. In a Hindu Pura (temple) this area is a private zone where only people who are going to meditate is allowed [10]. In a traditional house, Utama is designated for family temple where they held their daily religious ceremony, also as space for the elder member of the family as well as storage for sacred artifacts [9]. This meaning become the basis of its redefinition into the modern function, Utama is a private area that prioritizes tranquillity. The human-God relationship can be felt in a calm atmosphere and close to nature. Hotels are basically similar to residences which are generally prioritize private functions. Particularly resort hotels, where guests want a calm atmosphere to rest. Therefore, the Utama Mandala in the new
function can be redefined as private area which is calm and nuanced in nature. In hotel function, areas
that requires high quietness are the guest’s rooms.

3.2.2. **Madya Mandala.** *Madya Mandala* is believed to be the place and values for human relationship.
In traditional Balinese buildings, the neutral area is where the *nattah* (yard) is located. *Nattah* used to
be indoor-oriented and has turned into outdoor-oriented [10]. In modern residential functions, Nattah is
usually part of the house where the family member interacts. As a public residential, a hotel has quite
many places for interaction, among others are the lobby, restaurants, and the hotel recreational facilities
such as gardens and swimming pools. These functions are comparable to the *Madya Mandala* values.

3.2.3. **Nista Mandala.** *Nista* means despicable. *Nista Mandala* is believed to be where the relationship
between man and nature, where despicable human behavior will destroy nature. It is a reminder that
human behavior towards nature must be controlled. In Balinese traditional buildings, *Nista Mandala*
used to be the outer part of a temple or houses [8]. This represent the profane or less sacred area where
the unclean things are located like toilets and animals’ cages [9]. In modern function, this function is
part of the service area. In the resort hotel it is the back of the house or service area that includes kitchen,
laundery, dump trash, and parking lots.

3.3. **Application of Tri Mandala to spatial organization of resort hotel design**
The application of the *Tri Mandala* in Balinese traditional house is *Utama* for temples and shrines.
*Madya* for daily activities and *Nista*, where the garbage is collected. On the other hand, hotels are
tourism accommodation which are basically residential areas. Applying the concept is one way to
introduce the local culture the guests. This study aims to analyses the application of the Tri Mandala
concept to the design of modern hotel buildings by redefining the meaning of *Tri Mandala* and aligning
it with the concept of mass and spatial composition.

The application of the *Tri Mandala* spatial pattern concept to spatial patterns in the design of hotel
resorts in Kuta Bali is shown in Table 1.

| **Tri mandala categories** | **Meaning** | **Redefinition** | **Traditional functions** | **Modern hotel functions** |
|--------------------------|-------------|------------------|--------------------------|---------------------------|
| Utama Mandala            | Sacred      | Contemplation    | Religion                  | Unit hotel and temple     |
| Madya Mandala            | Neutral     | Daily life       | nattah                    | Hotel facilities:         |
|                          |             |                  |                          | swimming pool, garden     |
| Nista Mandala            | Profane     | Service          | garbage                  | Basement, back of the     |
|                          |             |                  |                          | house, kitchen            |

3.3.1. **The Utama Mandala of the hotel.** The original meaning of *Utama Mandala* is the deepest area
which is the sacred area where the temple is located. In resort hotel design, redefinition of Utama
Mandala is private zone, since the private area is the most important in the hotel areas which has to be
protected the most. In designing a resort hotel in Kuta Bali, *Utama Mandala* is where the private spatial
functions are located, such as room units (Figure 4). Furthermore, this area is also where the temple is
located.
3.3.2. The Madya Mandala of the hotel. The original meaning of Madya Mandala is the neutral area. In resort hotel design, redefinition of Madya Mandala is public zone, since the public area. In designing resort hotels in Kuta Bali, Madya Mandala is redefined as resort hotel facilities. These facilities are gardens, swimming pool as well as a ballroom (Figure 5).

3.3.3. The Nista Mandala of the hotel. The original meaning of Nista Mandala is the less sacred area where the animal house is located and the garbage is collected. In resort hotel design, redefinition of Nista Mandala is service zone, since the service area. In designing a resort hotel in Kuta Bali, Nista Mandala is where the service spatial functions are located, such as entrance, exit, kitchen, parking areas. Moreover, the temple and room units must not locate in Nista area (Figure 6).

Figure 4. The Utama Mandala in resort hotel.

Figure 5. The Madya Mandala in resort hotel.

Figure 6. Nista Mandala in resort hotel.
4. Conclusion
Protecting culture is very important, especially Bali has various of local culture that needs to be preserved. One of the ways to preserved the local culture in architecture is by redefining the Tri Mandala concept in spatial organization without changing its true meaning. The proposed architectural design concept, neo-vernacular is to be applied to resort hotel to introduce the local culture to foreign tourist and also preserved the culture. Based on the Tri Mandala concept, the site is divided into three zones, namely Utama, Madya, and Nista. Utama is redefined as a private area and implemented in guest room units, Madya is redefined as a public area and implemented in the lobby, restaurant and swimming pool functions, while Nista is redefined as a service area and implemented in back of the house and parking functions. By applying neo vernacular in modern building designs, it is hoped that local cultural values can be preserved.

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