



Meru Architecture in Bali: History, Function and Challenges

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ABSTRACT

Meru is a sacred structure in Balinese architecture, symbolizing Mount Sumeru in Hindu-Buddhist cosmology. Introduced by Mpu Kuturan in the 11th century, Meru is a key feature of Balinese temples, representing the connection between the divine and earthly realms. The tiered roof, which can range from one to eleven layers, reflects different levels of the universe, with higher tiers holding greater spiritual significance. Meru is not only a site of worship for deities and ancestors but also plays a crucial role in traditional ceremonies, such as the *ngaben* cremation rites. One of the remarkable aspects of Meru is its earthquake-resistant design. Built with natural materials like *ijuk* (sugar palm fibre) and ironwood, its proportional structure and construction techniques allow it to withstand seismic shocks effectively. However, while Meru can endure earthquakes, it remains vulnerable to fire, especially due to lightning strikes. The dry, flammable *ijuk* used for the roof makes Meru susceptible, as evidenced by recent fires at temples like Ratu Gede Bima Sakti and Dadia Bingin. Efforts to protect Meru from fire hazards are underway, including raising community awareness and improving fire safety protocols. Despite these challenges, Meru continues to stand as a powerful symbol of Bali's spiritual and cultural identity, blending ancient traditions with modern efforts to preserve this sacred architecture.

Keywords: Meru, Bali, fire.

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BACKGROUND

Bali, known as the “Island of the Thousand Temples,” attracts visitors for its natural beauty and rich cultural heritage. A major attraction is the temples featuring tiered roofs, called Meru. This distinctive architecture often piques curiosity regarding its hidden meanings and symbolism. Mpu Kuturan, a Javanese priest in the 11th century, introduced the concept of Meru.^{1,2} Mpu Kuturan's arrival in Bali brought significant changes, including introducing the Meru roof concept to temples. Notable examples include the frequently visited temples such as Besakih temple, Taman Ayun temple, and Ulun Danu Beratan temple. Mpu Kuturan also oversaw the construction of Silayukti temple in East Bali, further emphasizing the influence of this architecture on Balinese civilization.

Meru is a sacred structure in Balinese architecture that holds deep religious and symbolic value for Hindus in Bali. Typically found in large temple complexes, Meru serves as a place of worship for deities and ancestors and a symbol of the

universe. Its presence extends beyond temples to important religious rituals such as the *ngaben* ceremony,³ where Meru is a receptacle for the deceased during the *pitra yadnya* rites. As a crucial element of Balinese culture, Meru displayed a blend of precise proportions, construction techniques, and ornamental beauty adhering to local philosophy.

Meru, a sacred structure for Hindus in Bali, is highly valued for its spiritual significance and stands out for its unique and robust architecture. Meru is renowned for its earthquake resistance, showcased the ancestral knowledge of the Balinese in dealing with natural forces. Despite its earthquake-resistant design, however, Meru often suffers from lightning strikes, which have damaged several sacred buildings in Bali. This article will discuss the description of the Meru's form, function, philosophical significance, and the potential vulnerability to disasters affecting Meru structures from 2023 through the first quarter of 2024. It is expected that this writing would lead to further studies aimed at the refinement of this ancient architecture.

The Architecture Layout And Inspiration

For the Balinese, Meru represents Mount Sumeru, which in Hindu-Buddhist cosmology is considered the centre of the physical and spiritual universe. The summit of this mountain is believed to be the abode of deities, including Shiva. Besides temples, Meru elements are also found in Bade architecture and used in traditional Balinese cremation ceremonies. Meru is a highly esteemed sacred building, constructed based on accurate proportions, construction logic, and decorative beauty, adhering to local wisdom of Balinese Traditional Architecture such as *Hasta Kosali Kosala*, *Hasta Bumi*, *Andha Buana Lontar*, *Lontar Jananthaka*.⁴

Structurally, Meru follows the *Tri Angga* principle, dividing the building into three parts: the base (*bebaturan*), the body (worship space), and the head (roof).⁶ The distinctive feature of Meru is its tiered roof, which varies in the number of tiers from one to eleven.⁷ Some special Meru, such as those used in *ngaben* ceremonies,



Figure 1.⁵ Mount Meru as depicted on Bhutanese thanka of Mt. Meru and the Buddhist Universe, 19th century painting.



Figure 2.¹¹ an eleventh-tiered Meru in inner courtyard of Besakih Temple.

can have up to 21 tiers, reflecting higher spiritual symbolism. The building is adorned with ornaments rich in symbolic meaning, representing the relationship between humanity and the universe. Flora and fauna motifs, such as dragon and turtle statues, symbolize prosperity and well-being. The roof features ornaments called “*murdha*,” as seen in the Meru of Besakih temple. The base and doors are decorated with coral carvings and *patra olanda*, enhancing the building’s aesthetics, while lion or dragon statues on the columns and base add a sacred impression.

The grandeur of Meru is demonstrated by its layered roof or *tumpang*. Each tier of the Meru roof symbolizes different layers of the universe, from the earthly realm (*bhuana alit*) to higher spiritual realms (*bhuana agung*). For example, an eleven-tiered Meru shows a spiritual level encompassing eleven layers of existence, ranging from the material (*sekala*) to the spiritual (*niskala*), moksha (liberation), and *cayen* (the pinnacle of unity with the divine). Additionally, the Meru roof symbolizes the unity of ten sacred characters known as Dasa Aksara, representing the spread of spiritual energy throughout the universe. At the centre of these characters is the “*Omkara*,” symbolizing the Supreme Being.^{8,9}

One unique feature of Meru is its earthquake-resistant construction. Many Meru structures remain standing despite frequent seismic activity in Bali, such as in Seririt and Buleleng. This resilience is due to adherence to traditional Balinese construction principles like *Hasta Kosala Kosali* and *Hasta Bumi*. Moreover, Meru’s proportional design and robust base structure enable it to withstand seismic forces effectively.

Meru is not only a spiritual symbol for Hindus in Bali but also a popular photographic subject. A prime example is the Tanah Lot temple, where tourists often capture the silhouette of Meru against dramatic sunsets. Meru is typically placed in a temple’s main courtyard (*Jeroan*), usually oriented towards the west. However, some temples have Meru oriented differently according to geographic conditions and local philosophy. For instance, Kehen temple in Bangli has a Meru facing south, while Uluwatu temple in Badung faces northeast.¹⁰

Philosophical Meaning of Meru in Balinese Spiritual Perspective

Meru in Bali embodies multiple layers of profound symbolic meaning, as written in ancient Lontar texts such as the *Lontar Andha Bhuana* and *Lontar Tantu Pagelaran*. Generally, Meru is considered a representation of Mount Mahameru, symbolizing the universe and the abode of the gods. Mount Mahameru is also regarded as the seat of the Supreme God (*Ida Sang Hyang Widhi Wasa*) and a symbol of the ancestral origins. The *Lontar Andha Bhuana* explains that the term “Meru” is derived from two components: “*me*,” meaning mother (*pradhan tattva*), and “*ru*,” meaning father (*purusa tattva*). The combination of these components shows the union of masculine and feminine elements, which are seen as the sources of life in the universe. Consequently, Meru also functions as a site of worship for the sacred spirits of ancestors, who are perceived as part of the holistic universe.^{12,13}

The roof of Meru features varying tiers, from one to eleven. Meru is found in prominent Balinese temples, characterized by its high, overlapping roof (reaching 10 meters or more), with an odd number of tiers (1, 3, 5, 7, 9, 11). Only one roof overlaps two tiers, making Meru a prominent feature in a temple. The higher the number of tiers, the greater its spiritual significance. A Meru with eleven tiers is the highest and symbolizes Eka Dasa Dewata, consisting of eleven sacred letters: 10 sacred letters consists of *Sa, Ba, Ta, A, I, Na, Ma, Si, Wa, Ya*, and 1 sacred letter *Omkara*. The number eleven also holds symbolic significance in the Saka-Bali calendar and is revered as the most sacred number.

Earthquake-Resistant Construction Yet Susceptible To Fire

The architecture of Meru features a distinctive tiered roof known as *tumpang*. The roof is covered with *ijuk*, a type of natural fibre used in traditional Balinese architecture. This fibre is derived from the sugar palm tree and is used for thatching roofs due to its durability and flexibility. It helps absorb shock and provides a unique aesthetic. Using *ijuk* strengthens the structure and allows the roof to absorb



Figure 3.¹⁶ Footage of fire on Meru at Puseh Temple, Taman Bali – Bangli in 2023.

seismic energy. Meru's tiered construction also enables an even distribution of load, enhancing its stability during earthquakes.¹⁴

Research on Meru architecture indicates that natural materials such as ironwood and ijuk offer good flexibility, enabling the structure to withstand seismic shocks. As cited from *The Jurnal Arsitektur Nusantara* (2021) notes that Meru can endure earthquakes up to a magnitude of 6.5 on the Richter scale without significant damage. This makes Meru one of the traditional Balinese structures resilient to natural disasters.¹⁵

Despite its robustness against earthquakes, lightning strikes pose a real threat. Fires caused by lightning strikes to Meru, constructed with ijuk roofs, are a concern. The dry and flammable nature of ijuk makes Meru vulnerable to fire when lightning strikes. According to the Meteorological, Climatological, and Geophysical Agency (BMKG), Bali experiences relatively high lightning frequency, particularly during the rainy season. The natural flammability of ijuk and extreme weather conditions increase the risk of fires. Lightning incidents have reportedly risen 10% in recent decades due to global climate change.

A series of fires have affected several Meru structures at various temples. These incidents were caused by lightning strikes impacting sacred buildings in

Bali. Although such events have occurred multiple times, they are often viewed as inevitable natural disasters. For instance, in April 2024, Meru at Ratu Gede Bima Sakti temple in Tanah Lot, Tabanan, Bali, was struck by lightning during a heavy rainstorm on Wednesday, April 24, 2024, at approximately 17:45 WITA. According to information from the Tabanan Police Public Relations Officer, IPTU I Gusti Made Berata, witnesses reported smoke emanating from the top of the Meru following the lightning strike.

Four fire units were dispatched to the scene, and the fire was extinguished around 21:00 WITA. Despite this, significant structures such as Meru Tumpang Tiga, Pesimpangan Dalem Boma, Piasan, and Pelinggih Mekel were destroyed, with estimated damages reaching IDR 1 billion. The temple authorities regarded this incident as a disaster. Similar events have occurred at other temples in Bali. On January 1, 2024, Meru Tumpang Tiga at Dadia Bingin temple in Karangasem was consumed by fire, destroying the Pelinggih Gedong Sesuhunan, with estimated damages in the hundreds of millions of rupiah. The Karangasem Police are still investigating the cause of the fire with no clear leads.

Furthermore, on September 19, 2023, Meru Tumpang Tiga at Gunung Payung temple in South Kuta, Badung, also caught fire. Initial suspicion suggests that burning

remains of offerings left unattended caused the fire. Estimated damages are around IDR 300 million. The fire suppression process was challenging due to the thick ijuk roof, making it difficult to extinguish the flames.^{17,18}

Following these incidents, various stakeholders in Bali are working to prevent similar occurrences. Bendesa Adat Kutuh, I Wayan Mesir, has urged the community to exercise greater caution when disposing of offering remnants and to ensure no debris is left around the temple. Additionally, local authorities plan to improve access for fire trucks and install hydrants near temples to expedite firefighting efforts in case of future incidents. Recovery ceremonies, such as Upacara Guru Piduka, are also conducted to seek forgiveness and protection after fire disasters.^{19,20}

CONCLUSION

In conclusion, the Meru architecture in Bali is more than just a remarkable feature of the island's temples; it's a powerful symbol of the island's spiritual and cultural identity. Representing Mount Sumeru, Meru is central to Balinese temple design and embodies the deep connection between the divine and the earthly. Its tiered structure presents not only the balance of the cosmos but also the profound respect that the Balinese have for their gods and ancestors. This architectural style, introduced by Mpu Kuturan, plays a crucial role in religious rituals and in preserving Balinese cultural traditions.

While Meru's design showcases advanced earthquake-resistant techniques, it faces significant risks from lightning strikes. The use of ijuk, which strengthens the structure against seismic activity, unfortunately also makes it more susceptible to fire. Recent fires, such as those at Ratu Gede Bima Sakti temple and Dadia Bingin temple, highlight the urgent need for better fire safety measures. These incidents underscore the challenge of maintaining these sacred structures amid natural hazards.

Efforts are currently being made to tackle these issues, including enhancing fire safety protocols and raising community awareness. The commitment of local authorities and temple communities to

safeguarding these sacred buildings reflects their importance in Balinese culture. As Bali navigates both natural and modern threats, Meru remains a powerful symbol of resilience and devotion, bridging the ancient traditions with contemporary realities through its unique and sacred presence.

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