

Cultural Landscape and Spatial Orientation: Designing Tourism Facilities and Addressing Covid 19 Protocol in the Eastern of Bali

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Covid-19 has tremendously impacted global daily life and the built environment, particularly in tourist places' pleasure. Modern architectural practices, such as planning tourist sites, must display new patterns while updating current ones to control contagious diseases efficiently. Polarity is a spiritual concept in Bali that focuses on the impact of nature and geography on traditional Balinese societies. The island's natural environment influences traditional Balinese beliefs and practices on the propriety of specific architectural types and space layouts. According to this theory, the universe was created by colliding two opposed poles. It makes some suggestions for improving the layout of rural villages. This architecture can be seen on the Indonesian island of Bali at several major tourist spots, most notably in the island's eastern area. Despite this, the Covid-19 pandemic underscored the significance of virus prevention in building design, particularly tourist-oriented hotels. Architects, designers, environmentalists, and others in the tourism industry face several challenges while creating and building environmentally sustainable tourist facilities. The study's goal was to see if the traditional architectural principles of eastern Bali could be leveraged to create a tourism facility template that would allow the hospitality industry to meet the demand for new, effective layouts and layout variants. As a result, the villages in eastern Bali that have preserved their old practices have contributed significantly to our understanding of what it means to be a modern human. Professionals can use historical knowledge to build resilient patterns and configurations even when confronted with modern threats, such as viral attacks on famous tourist locations. This study refuted several long-held ideas in light of the Covid -19 results.

Keywords : The traditional architecture, pandemic, traditional settlement, spatial orientation, cultural landscape

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INTRODUCTION

The Covid-19 outbreak has significantly influenced the tourism value chain, small and medium-sized tourism businesses, and the creative sector ([Sugihamretha, 2020](#)). Covid-19 caused a tremendous upheaval in the hotel, restaurant, and bar businesses. The outlook for tourism infrastructure, namely cafes, is dismal; more than half of these establishments are expected to close. This pandemic has necessitated a new standard of building design, especially the tourist facilities, including those in Bali, Indonesia's most famous cultural tourism area. On the other hand, in the global economic crisis because of the protracted Covid-19 pandemic, ecotourism supported by the cultural and agricultural sectors in rural areas, as a part of the cultural landscape of Bali, can serve as a pillar of global economic growth, notably in Indonesia and Bali. The high areas of Bali in the middle of the island, stretching from west to east, has caused different spatial orientation in many places depending on location in the Balinese landscape. This spatial orientation has become an important element in Balinese belief that has influenced the variation of architectural production as a part of local wisdom. Therefore, applying new building standards without leaving the local wisdom of architectural production is necessary, especially in the eastern part of Bali.

As a part of the cultural landscape, traditional rural landscapes based on agriculture, particularly in underdeveloped countries with limited economic prospects, provide enormous tourism expansion potential ([Hossein et al., 2014](#); [Phelan & Sharpley, 2011](#)). Rural tourism is typically divided into three categories: ecotourism, culture tourism, and agrotourism ([Shushma, 2012](#)). In this case, increasing the value of tourism is a subset of the larger goal of agricultural expansion supported by cultural activities. Bali's geographical topography considerably affects spatial orientation in this agricultural heritage, as the highlands are located in the island's west-to-east flowing center. *Kaja* (mountain direction) and *kelod* (sea direction) may alter depending on the geographical conditions. The island of Bali is typically divided in half, with the southern and northern sections acting as different spatial orientations. In the southern part of Bali, *kaja* is north and *kelod* is south. In contrast, the *kangin-kauh* direction always points in the same direction: *kangin* toward the sunrise and *kauh* toward the sunset. The sunset (*kauh*) direction is profane areas that based on the Balinese believe is the place for purification ([Hobart et al., 2001](#)). Coordinate and

orientation systems, ritual conduct, and social space configurations all help to build the two basic directions known as *kaja-kelod* and *kangin-nauh* ([Hobart et al., 2001](#); [Rai Remawa & Rai Padmanaba, 2021](#)). In this location, intercardinal directions include *kaja/kangin*, *kelod/kauh*, *kelod/kangin*, and *kaja/kangin*. The eight cardinal directions, each linked with a different deity, govern the location of houses and other structures in a community, as well as how religious rites are performed ([Wassmann & Dasen, 1998](#)). Many modern structures, particularly those designed to attract visitors, follow this time-honored spatial pattern.

However, the epidemic has hampered the construction of several structures, including tourist attractions. Case studies of the Covid-19 pandemic will help us understand the disease's influence on people's daily lives and community aspirations. Social isolation or quarantine was widely practiced as the first defense line, influencing building construction issues ([Megahed & Ghoneim, 2020](#)). Because the Covid-19 pandemic has the potential to spread, all human activities, particularly those occurring in public places, are prohibited during the epidemic. A pleasant, optimal, and acceptable setting for all activities is essential to facilitate this handoff. The construction of structures for urban areas is known as architectural design. Every structure component, from the foundation to the tourist attractions, must be secure and free of contagious diseases when humans are present. The ideal house design principle is expected to result in a healthy, clean, comfortable, and safe structure, as well as offer the minimum amount of space required to meet Covid-19 principles. As a result, it is critical to retain client demand even during a crisis ([Pizam & Mansfeld, 1996](#); [Sigala, 2020](#)).

Many people in the tourism industry have attempted to develop contemporary dwellings and historic structures on their sites. People have consciously tried decorating their houses in a traditional Balinese fashion to attract tourists and preserve their unique identity ([Putra et al., 2015, 2019](#)). However, the village has been unable to include historic structures in its tourism infrastructure due to a lack of an acceptable transformation strategy. Furthermore, the new building design has disrupted the traditional component of natural air circulation, which had already been removed from the building due to flaws. This paper investigates novel techniques for preserving ancient structures as cultural tourist attractions that create economic benefits and meet the standards of the covid-19 guideline for tourist facility construction in the East Bali highland.

Traditional Balinese architecture serves as a cultural identifier and a tourist attraction in a particular area. Beautiful traditional villages attract people interested in the architecture and cultural activities passed down through centuries in these communities. When private properties are transformed into tourist facilities, the owners benefit in various ways. The lack of a contextual and innovative model of traditional house transformation that can be applied greatly adds to the blurring of cultural zones in traditional houses, particularly those used as tourist facilities (Putra et al., 2017). Conflicts of interest between preserving traditional qualities, introducing new tourism-related functions into traditional architecture, and the covid 19 protocol for providing travelers with a healthy tourist facility are the primary impediments to developing traditional architecture as tourist attractions. Due to this friction, those who want to renovate old structures without sacrificing their cultural roots usually find themselves in a challenging situation.

DATA AND METHODS

This study describes a step-by-step process that begins with gathering baseline data that catalogues the texture and personality of common home renovations and finishes with an analysis of these alterations. The academics then investigate the traditional architecture of eastern Bali, especially the settlements close to Mount Belibis. The investigation's goal, which used a stratified random sample and in-depth interviews, was to find and improve the conventional framework. The description and objectives of a traditional home are then applied to the study and production of technological advancements in traditional architectural transformation models for use as tourism facilities.

RESULT AND DISCUSSION

Cultural Landscape and Spatial Orientation in the Eastern of Bali

Cultural landscapes are primarily recognized as a pattern of cultural representations on the ground (Domosh, 2004; Salter, 1971). The intricacy of the cultural landscape is shown by the connection of nature, culture, and economy (as it pertains to food production) with one another (Farina, 2000). Culture and human contact have influenced a subsequence of evolution, and the two have fused to produce the current pattern (Myga-Piątek, 2011). A cultural landscape can be viewed as an evolutionary image of people honing their ability to exploit and

influence their environment (Adhika & Putra, 2021) by integrating biophysical and sociocultural techniques within an ecological cycle (Chaparro González, 2020). This conception implies that landscapes can be designed and created intentionally by humans or occur naturally or associative cultural landscapes because of religious, artistic or cultural associations to the surrounding natural elements (Purnawan et al., 2021).

This cultural landscape for Balinese is understood as a cosmic rule that dictates the Balinese way of life un-separately from the people's spatial orientation. Orientation is founded on polarity, which holds that the universe comprises contradictions or cosmic antagonisms, such as the mountain-sea or sacred-profane dichotomy. The physical environment of Bali is influenced by orientation, including the placement of monuments, shrines, and residences (Budihardjo, 1986; Hobart et al., 2001; Tan, 1967). *Kaja*, the direction of the mountains and heavens, is where the gods live, whereas *kelod*, the opposite direction of *kaja*, is also where the gods live for purification (Eiseman Jr, 1989).

Bali's challenging geography, with its west-to-east growing core plateau, has also aided in the evolution of this orienting principle. This principle explains why *kaja* and *kelod* are found in different places. The island of Bali is separated into two distinct regions: the south and the north. *Kaja* is north in southern Bali, and *kelod* is north in northern Bali. In contrast, *kauh* always faces west toward the sunset, but *kangin* faces east toward the rising sun. *Kangin* is the sacred direction, where the sun rises and brings light and life, while *kauh* is the profane direction, where the sun sets and delivers darkness and death (Hobart et al., 2001). The two fundamental directions, *kaja-kelod* and *kangin-kauh*, serve various functions, including orientation and pathfinding, creating social standards and structuring common areas (Hobart et al., 2001).

Despite this, many settlements in eastern Bali are oriented toward two modest mountains with great symbolic value. This region has several settlements, and the *kaja* direction is decided by the highest mountain peak in their line of sight. The direction of *kaja* is determined by the distance between a settlement and the nearest high point. If this scenario plays out, there will be consequences in the opposite direction. Unlike other Bali villages where the direction of *kangin* and *kauh* is fixed, the direction of *kangin*, for example, is changed depending on the location of the villages (See Figure 1) (Wassmann & Dasen, 1998).

Most villages on Bali's eastern side face opposite directions. In contrast to their western and eastern neighbors, who point to Bali's central highlands, the settlements distinguish between two small but significant mountains. Seraya Village is the southernmost and most important settlement. *Kaja* and *kangin* are located north and east respectively. However, the characteristics of the other nearby settlements are quite distinct. The orientation of each village's *kaja* relative to the mountain's peak is fixed. However, the relative positions of the *kaja* can shift depending on the viewer's position relative to the other direction. The direction of *kangin*, for example, can change depending on where these villages are located. Similarly, in Batukaseni and Banyuning Village, *kangin* fled to the northern coast from Seraya Village (in a clockwise direction). The sun rises in *kelod* and sunsets in *kangin* (See Figure 1) (Wassmann & Dasen, 1998).

The varied spatial orientation of this section of Bali's residential areas distinguishes it. *Kaja-kelod*, and *kangin-kauh* in Bali base their traditional spatial orientation on a changeable spatial orientation (north-south and east-west). The *kangin-kauh* axis cuts through the traditional east-west alignment. It is necessary to distinguish between sacred and profane areas and locate the gods who live there. In other terms, it looks like a mirrored image of opposites. This spatial and spiritual concept is reflected in the design of Bali's traditional villages and dwellings. Due to their great distinctiveness and indigenesness, the *kaja-kelod* and *kangin-kauh* axes must be better defined in specific regions, particularly in eastern Bali. The *kaja-kelod* and *kangin-kauh* have established a more amicable cohabitation. The region's specific spatial orientation will likely impact and lead to new distinctions in spatial patterns between residential areas and conventional housing.

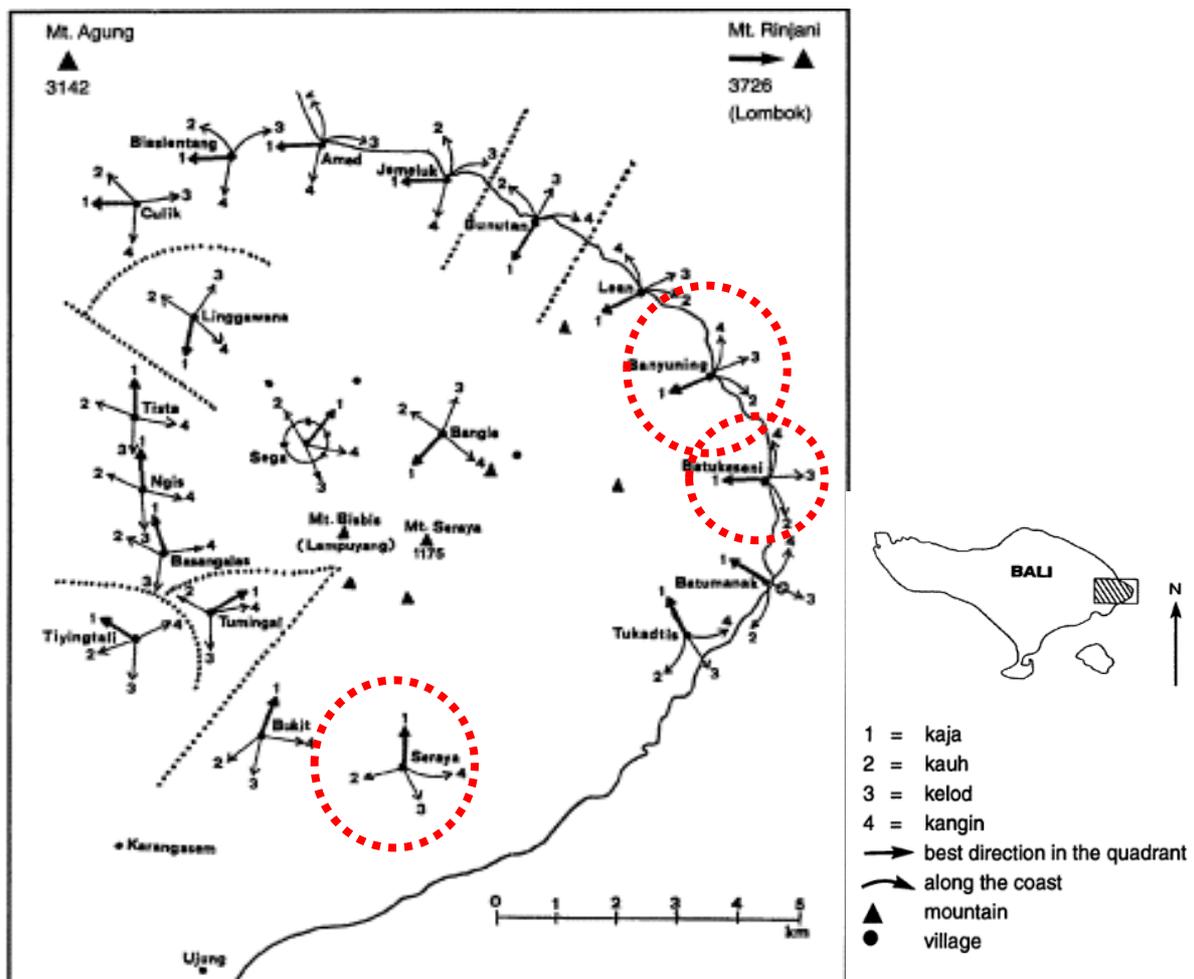


Figure 1. Spatial Orientation in the East of Bali (Source: Source: Wassmann & Dasen, 2012)

Spatial Orientation and the Traditional Settlement Pattern and Architecture

Historically, the geographical context has

established zones where various religious and ceremonial activities coexist peacefully. Major disparities between sacred and secular zones in

Amed, Culik, Bangle, and Purwakerti cities surround Mount Belibis. The holy land and sacred site are located in the direction of *kaja-kangin* (Figure 2). Main core in the village centre links the temple and the cemetery. The units' exterior entrances lead to the passageway. This route, flanked by many roadways, acts as the main entrance to the complex for many people. The main corridor houses the primary entrances to many residential buildings.

Geographical context, traditionally, has been utilized to establish zones in which various religious

and ceremonial activities can coexist peacefully. There are major disparities between sacred and secular zones in the cities of Amed, Culik, Bangle, and Purwakerti that surround Mount Belibis. In these areas, the holy land and sacred site are located toward *kaja-kangin* (Figure 2). The passage runs through the community's heart, connecting the temple and the cemetery. Each house has direct access to the corridor. Flanked by many roadways, this passage acts as the main entrance to the main village areas for many people. In this case, the main corridor houses the primary entrances to many residential buildings.

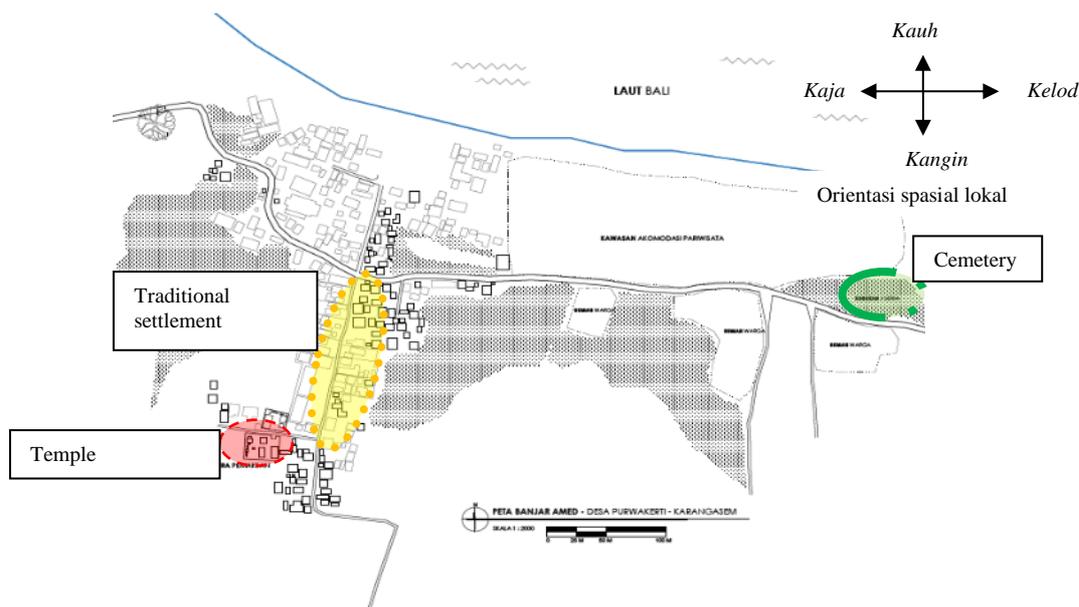


Figure 2. The spatial Patern of Amed Village

The Bale Agung Temple is central to traditional Culik. The *kaja* direction symbolizes the holy land and sacred location, while the *kelod* direction denotes profane territory. Culik settlements are centered on the *catus patha*, the main core that cuts through the area. This main core is a *kaja-kelod* and *kangin-kauh* crossroads. The main temples (Dalem Puri and Bale Agung) are located in the *kaja*

direction, connecting to the main path connecting *kangin* and *kauh*. The *catus patha* follows the main road to the *kangin-kauh* village market. A temple to Danu was built during the *catus patha* (Figure 3). There is a residential community along the *catus patha*. Each residence has direct access to the main corridor, and some have several exits (Figure 4).



Figure 3. The Dewi Danu statue in the catus patha of Culik

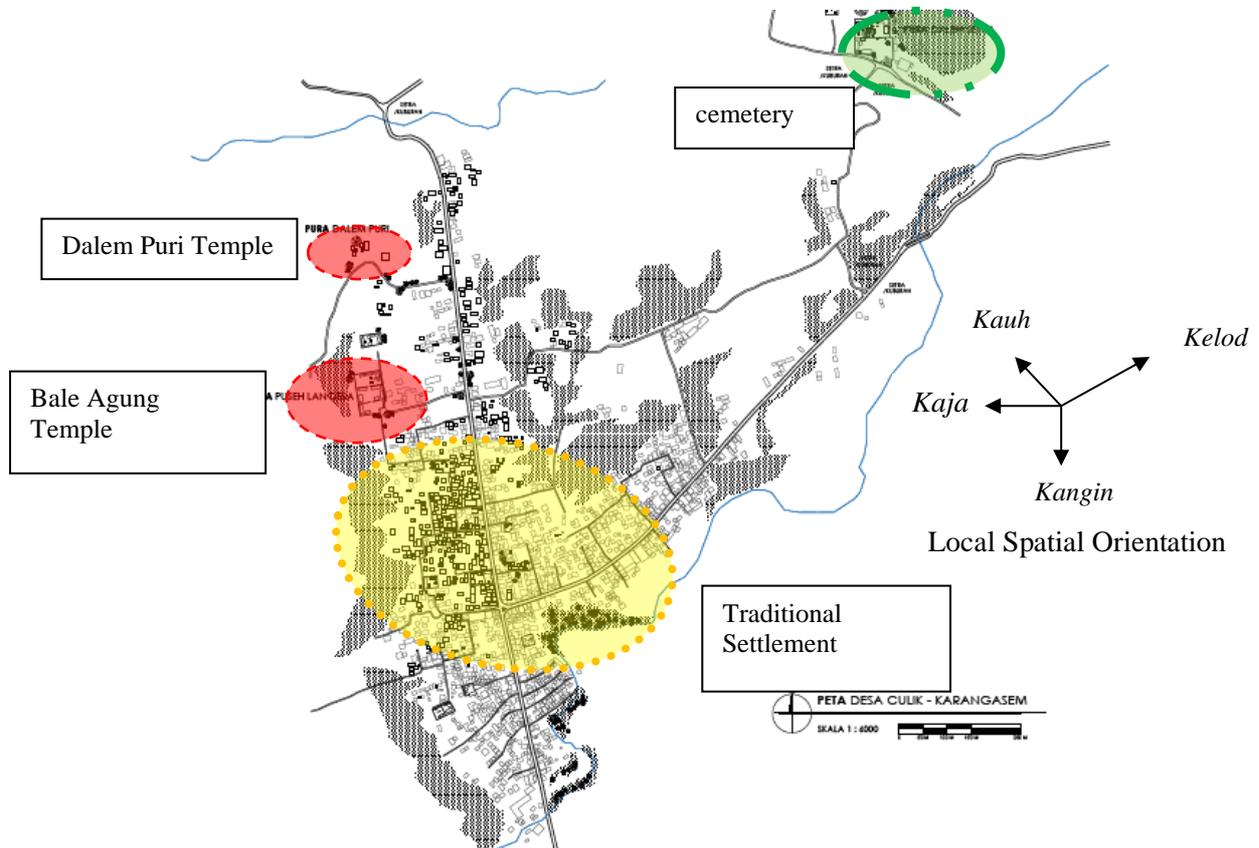


Figure 4. The Pattern of Culik

Culik's houses are multi-unit housing with separate cooking and sleeping rooms. The sacred site may be seen from the native *kaja-kauh* direction, which is northwest. The sacred area will be to your left (*kaja* direction) as someone approach the home through the gate, and the kitchen will be in the south direction (*kelod*). At least one *pelelingih* or shrine, can be found in each *natah* or courtyard. The

sleeping quarters are positioned on the *kauh* and *kangin* sides of the shrine (Figure 5). According to the people of the holiest region of the world, *kaja* points in that direction. We are now confronted with the mountain that houses the ancestor and divinity *Ida Sang Hyang Widi Wasa*. Balinese frequently prefer the *kaja-kangin* direction when seeing sacred sites from the *kaja-kauh* direction.

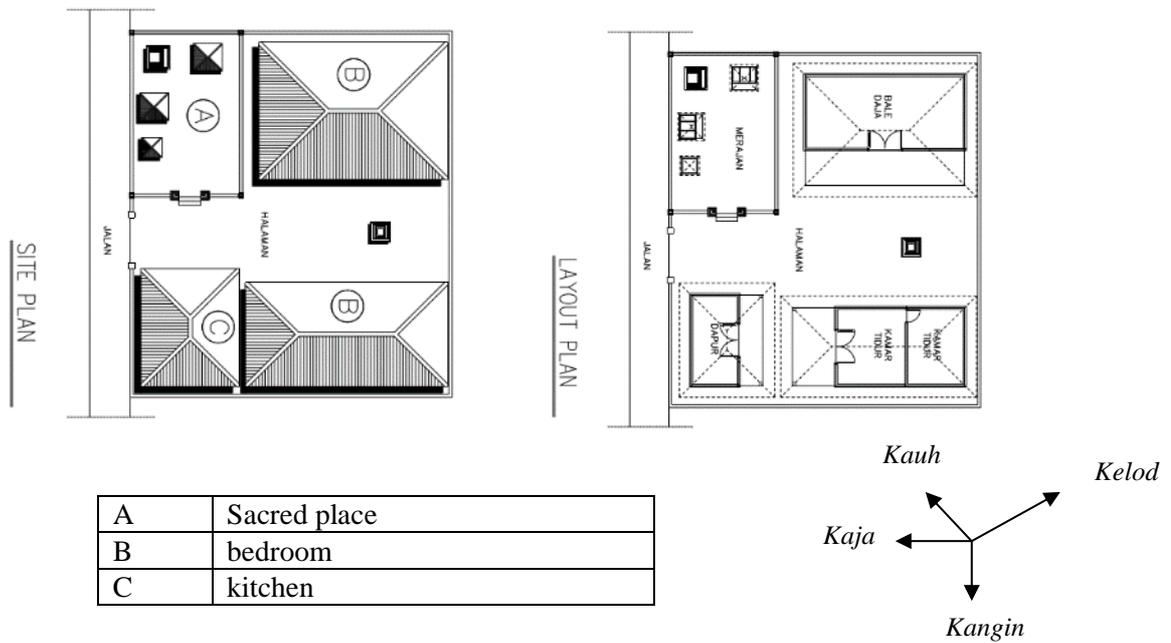
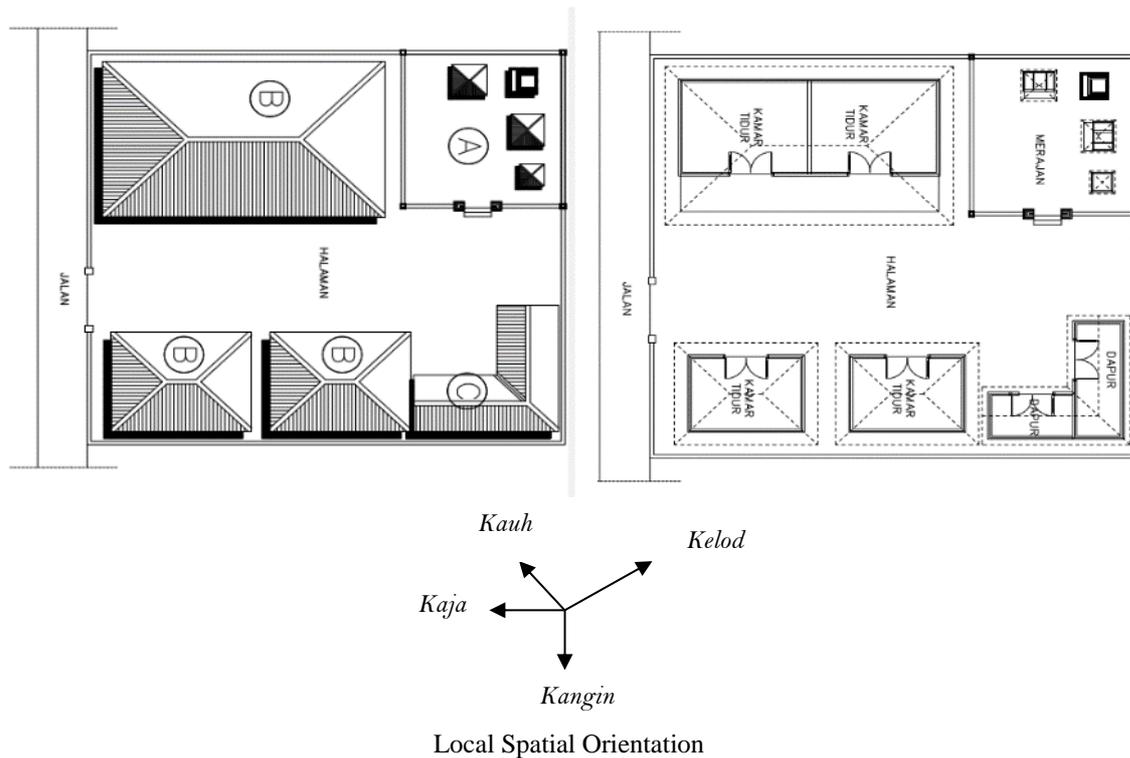


Figure 5. The House Sample Pattern in Culik

Local Spatial Orientation

In contrast to the first example, where the holy place faces northwest (*kaja-kauh*), the holy place in this dwelling faces northeast (*kelod-kauh*). As a result of the local orientation, this is the most profane location for the shrine (Figure 6). After passing through the gate, the bedrooms are on the left and right, and the kitchen faces the holy site at the far end of the house. This kitchen is oriented *kelod-kangin*, which refers to Dewa Brahma as the god of fire, the origin of life on Earth, and the genesis of traditional domestic activities. Cooking is the first thing folks do in the morning at this site.

The sacred area in the original home faced northwest (*kaja-kauh*), but in this example, it faced northeast (*kelod-kauh*). Due to popular demand, this is the most secular place for the shrine (Figure 6). The kitchen is at the far end of the house, overlooking the holy site, and the bedrooms are to the left and right of the entrance door. The *kelod-kangin* orientation of this kitchen honours Dewa Brahma, the god of fire, the originator of life on earth, and the forefather of traditional housework. When people first arrive at this location, they cook breakfast.



A	Holy place
B	Bed room
C	Kitchen

Figure 6. The House Sample Pattern in Culik

Responsive Building Design to Covid-19

The front of a building can now be planned and created with more freedom and creativity than ever before. Ventilation with adequate airflow patterns is critical for infectious disease control because it dilutes and removes infectious germs from the interior air around the source (Morawska et al., 2020). Natural ventilation systems are used in a variety of constructions. There are both positive and bad considerations to consider while using such tactics. Because of the incapacity to regulate air velocity and exterior air quality, there is a lack of agency in the risk management of such buildings. Furthermore, the dissemination of pathogenic aerosols can be prevented by strategically using natural ventilation (Guo et al., 2021).

The well-balanced dilution provided by the ventilation system's supply and exhaust vent locations keeps viruses to a minimum (Melikov, 2016; Thatiparti et al., 2017). The primary goal should be to breathe clean air; however, there may be local obstructions such as walls, drawn curtains for privacy, or medical treatments. If these impediments are present, they may impede ventilation. Numerous hospitals have implemented successful ventilation technology as part of routine and emergency precautions to prevent droplet and

contact transmission (Phiri, 2014). When there is adequate ventilation, occupants are also protected from airborne contaminants. When higher ventilation rates are required (as during the current Covid-19 outbreak), some systems may be unable to support them due to design or installation flaws (Morawska et al., 2020).

Internal climate control and illumination, on the other hand, are critical. Because fresh air and natural light are crucial to human health, a lack of either can lead to sickness. This thermal condition is especially true for the Covid-19 virus, which has been linked to stagnant environments. According to recent research, incorrect use of air conditioning in a building with no windows, such as a public building or a hotel, can lead to the spread of the Covid-19 virus (Lu et al., 2020). Architects plan the positioning of windows to enhance ventilation. Despite being more than a meter away from the infector, surrounding residents contracted the illness (Lu et al., 2020). The air circulation caused by the air conditioner, according to the author, contributed to the transmission of SARS-CoV-2-infected respiratory droplets. According to the investigation, SARS-CoV-2 was found in the environment (World Health Organization, 2020). This air circulation is feasible because the virus may require time to adhere

to the building's materials, which is slowed by the room's insufficient lighting and ventilation. The lighting and ventilation systems must be precisely planned and implemented for the architectural concept to be accomplished.

In Indonesia's tropical and hot climate, heavy usage of air conditioning will surely contribute to room cooling, preventing overheating and excessive sweating. However, because covid-19 is so contagious, this circumstance acts as a vehicle for its spread (Marcone, 2020). The Covid-19 virus can live in air conditioning systems for a lengthy period (Ahmadzadeh et al., 2021; Zhang et al., 2019). All enclosed spaces with air conditioning must be kept sterile and clean to prevent the virus from spreading globally. Furthermore, using central air conditioning in public places likely causes health issues. As a result, it is recommended that the temperature of the central air conditioning system be adjusted using a combination of natural ventilation and lighting. Air conditioning, common in Indonesia despite the country's tropical climate, would surely contribute to the room's coolness, preventing folks from overheating and perspiring excessively (Hildegardis et al., 2021). However, the rapid spread of the covid-19 virus under these conditions is cause for alarm. HVAC technicians can adjust these systems to limit the possibility of airborne transfer. In fact, with the advent of Covid-19, all organizations have changed their ventilation recommendations (Morawska et al., 2020). Changing the ventilation system of a hospital ward, for example, can result in "negative pressure" rooms (Miller et al., 2017). To avoid the shade of a shrub becoming a common source of disease transmission, always cleanse and maintain clean, air-conditioned workplaces. Central air conditioning may be harmful in public places. In rooms with central air conditioning, combining partial air cooling with natural air and illumination is desirable. Door handles, stair rails, elevator buttons, nonexistent fingerprints, and escalator railings/travelators are commonly handled surfaces that must be disinfected and cleaned regularly to prevent the virus from thriving for long periods.

HVAC and ventilation systems are in charge of keeping the indoor environment comfortable and healthy. Evidence suggests, on the other hand, that poor ventilation in confined places may contribute to a rise in respiratory illnesses (Ecdc, 2020). One of the most important causes of the transmission of SARS-CoV-2 is improper ventilation system utilization (Correia et al., 2020). The most important part is to develop a cleaning and disinfecting schedule for the rooms. This technique ensures that the virus does not remain on door handles, stair

railings, elevator buttons, non-fingerprint surfaces, escalator railings, and travelators for extended periods. The virus spreads faster in confined locations, such as buildings, than in open regions or outdoors. The following four factors influence the chance of transmitting respiratory illnesses in enclosed areas to varying degrees: A virus can be identified by four characteristics: 1) particle size, 2) airflow pattern, 3) virus type and 4) host-specific features (Kohanski et al., 2020).

New difficulties, most notably mask waste, will emerge due to the spread of Covid-19, a virus transmitted by people that can stay on inanimate surfaces for extended periods. What happens to a mask after it has been used by many people and discarded? Assume that a single patient is being studied or that an asymptomatic person is hiding behind a mask and is about to be expelled. It could serve as a transmission station and a medical waste processing facility for Covid -19. Extreme caution is required in this situation. A significant hospital's compliance with waste management laws is critical. It is dangerous if no local hospital exists (only an emergency place). Because the task force follows the World Health Organization's criteria, hospital garbage is never at risk. It is still being determined what happens to old masks after they have been used to clean a person's nose, mouth, and sneeze cover; are they burned, stored in a sterile place, or thrown away like other tissue trash? How will they be put to use? A clean, risk-free environment is essential due to the increased risk of communicable illness among waste management staff and garbage collectors. Because it is free of nonhazardous waste, the area should be accepted (which requires more research and standard operating procedures from the Ministry of Health).

The concept of washing hands before eating or working has consequences for where water and soap containers should be placed. Because so many people will come into contact with the material that makes up the faucets, whether water faucets or soap button faucets, the area where people wash their hands will also be a potentially dangerous location. As a result, automation must be considered throughout the planning and design phases to ensure that no one touches the soap dispensers and faucets used by others. These handwashing facilities should preferably be situated before users or visitors reach the area to reduce the risk of contamination.

Traditional Architectural Element in Tourism to Address Covid Protocol

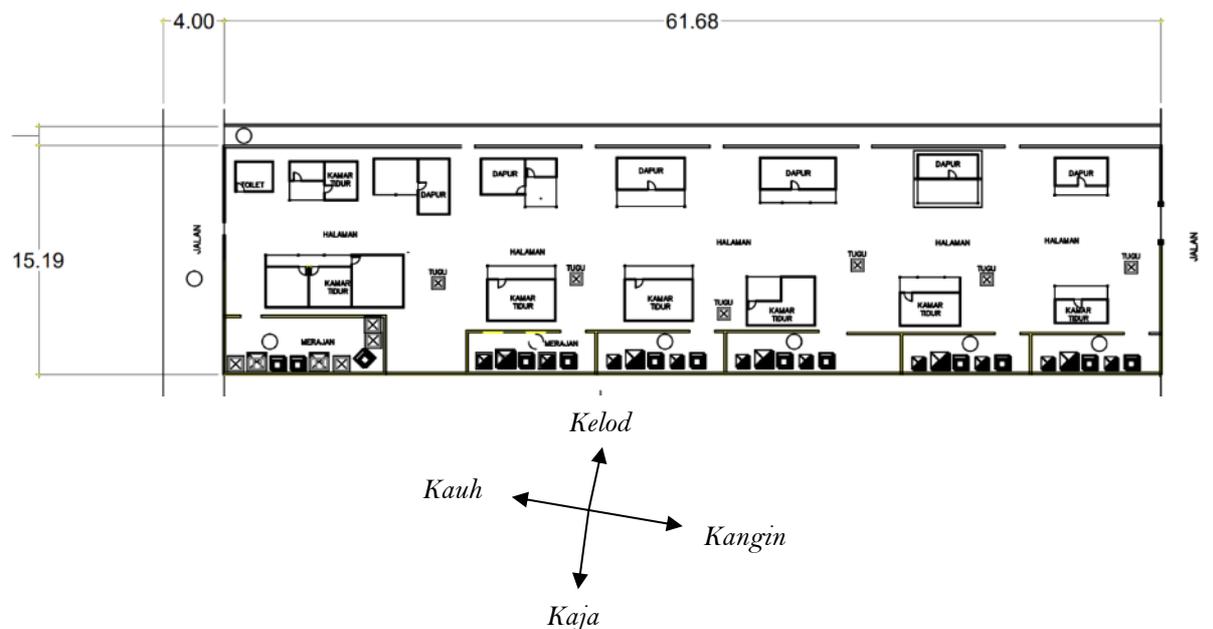
Designers must use both traditional building techniques and ecologically sensitive design to

represent indigenous culture successfully (Putra, 2020). The numerous architectural form aspects represent this cultural relic's cosmic significance and ideals. Traditional architecture frequently incorporates ecologically conscious design aspects. It is hoped that by using this design method, it will be possible to mitigate the effects of global warming while maintaining a constant global temperature. Eco-architectural design, also known as "nature as the design base," is a design method that mixes nature and technology (Fathony & Alfin, 2017).

Promoting the expansion of tourist communities in rural areas would increase the region's tourism potential (Alipour & Kayaman, 2011; Randelli et al., 2014). Agricultural fields, forests, rivers, and mountains dominate cultural landscapes, leaving little room for human settlements and infrastructure (Okech et al., 2012). Residential communities, on the other hand, are critical to the development of tourist villages since the design, layout, and activities of a village's residents give the community

its specific character and allow the town to offer visitors something unique.

Mount Belibis, also known as Mount Lempuyang, is integral to Balinese tradition. This area has mountainous terrain and residents who have settled in villages similar to Bangle. The hamlet's rugged geology has resulted in an unusual housing configuration of multi-unit dwellings that rarely belong to the same family. Wood and bamboo are common building components, as is clay flooring. A linear system is used to differentiate between settlement and residential patterns. It faces *kaja* (the mountain direction), but it also stretches to *kelod* (the downward direction), and it has a covered area and an entrance. On the other hand, the service area is typically situated at the back of the structure, farthest from the courtyard center called *natah* (Yudiantini, 2018; Yudiantini & Jones, 2015), and is critical for the home's ventilation and air quality (Kamal, 2021).



The House Pattern in Bangle

Bangle hamlet's architecture is meant to allow cross ventilation to exchange fresh air into the building to aid in the fight against virus accumulation within the dwellings, which are often modest and traditional in appearance. A community's private and public sectors contribute to promoting a healthy environment for its residents. Natural convection can warm and dry the air in a place when it is exposed to direct sunshine. Mold thrives in moist environments, so keeping this space dry was a high priority. The materials used are safe for tenants because they are not easily damaged or permeable,

do not contain toxins, and not grow mold quickly. Using hazardous or easily broken construction materials increases the danger of injury or death to the home's occupants. Using toxic or easily moldy materials increases the chance of sickness, even if symptoms may not appear for years. Plants and trees around buildings add aesthetic value, provide wind protection, and allow in natural light.

Like those in Bangle, the original Balinese pavilion is merely three to six square meters in size, but the architects' considered thermal comfort. It was

separated between the ceiling and the wall to allow optimum ventilation. This arrangement allowed unrestricted movement and wall-to-wall coverage of the space (Figure 7). The separation, however,

formed two holes, one for supply and one for exhaust, with air moving from the supply hole into the exhaust hole ([Laliberte, 1996](#); [Trimarianto, 2003](#)).

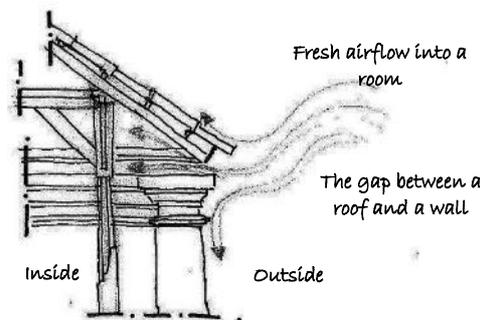


Figure 7. Fresh air flows in the traditional Balinese house pavilion

The structure's distinctive form and areas filled with cultural activities are aspects of architectural heritage identity ([Belova, 2021](#)) and very encouraging factors for the expansion of the agricultural tourism company. The additional value of this agricultural activity benefits the local economy and helps preserve the region's culture, attracting tourists from all over ([Adhika & Putra, 2021](#)). The evolution of the area as an integrated area between agricultural culture and daily community life depends on its evolution as a unique tourism with its own identity to attract visitors and keep them coming in the future.

CONCLUSIONS

Pandemic Covid-19 has altered numerous facets of human existence, including the architectural design of Bali's tourism facilities. Given the importance of culture to the development of tourism in Bali, the Balinese architectural style has become a crucial factor in attracting tourists. Incorporating cultural elements into tourism facilities has become a fascinating norm for tourists. On the other hand, traditional elements have never been incorporated, and this is particularly true of tourism establishments in Bali's eastern region. Traditional elements and motifs are used to attract visitors. During the Covid-19 pandemic, they are effective, particularly for cross-ventilation. This ventilation is necessary because introducing fresh air into a room helps maintain the health of its occupants.

To satisfy the need for natural air circulation and sunlight, people have devised numerous inventive solutions, such as installing a concrete gutter in a space typically occupied by a roof and a wall. This strategy enables the owner to obtain additional

operational space while also addressing the issues of natural air circulation and sunlight entering the building.

The building's design, as a component of the cultural landscape, incorporates culturally important elements throughout and enhances tourism activities. This business adds to the region's revenue and aids in the preservation of local culture, which is popular with domestic and international tourists. The most effective way to encourage healthy and appealing tourism development is to designate the area as a tourist location and plan visitor amenities in line with Covid-19. Each tourism facility has a unique identity that is intended to attract and keep customers.

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REFERENCES

- Adhika, I. M., & Putra, I. D. G. A. D. (2021). Reinvigorating cultural landscapes for planning cultural tourism in Bali. *Geojournal of Tourism and Geosites*, 33(4), 1462–1469. <https://doi.org/10.30892/gtg.334spl03-594>
- Ahmadzadeh, M., Farokhi, E., & Shams, M. (2021). Investigating the effect of air conditioning on the distribution and transmission of COVID-19 virus particles. *Journal of Cleaner Production*, 316(9), 128147. <https://doi.org/10.1016/j.jclepro.2021.128147>

- Alipour, H., & Kayaman, R. (2011). Governance as catalyst to sustainable tourism development, evidence from North Cyprus. *Journal of Sustainable Development*, 4(5), 32–39.
- Belova, D. (2021). Preserving identity of historical environments in Siberia: A critical literature review. *Architecture and Engineering*, 6(4), 3–13. <https://doi.org/10.23968/2500-0055-2021-6-4-03-13>
- Budihardjo, E. (1986). *Architectural conservation in Bali*. Gajah Mada University Press.
- Chaparro González, R. (2020). Some Insights into the Theory and Practice of Heritage Ecology: Grasping the Bio-physical and Socio-historical Dynamism of the Cultural Landscape of Hangzhou. *Documents d'Anàlisi Geogràfica*, 66(1), 133–158. <https://doi.org/10.5565/rev/dag.533>
- Correia, G., Rodrigues, L., Gameiro da Silva, M., & Gonçalves, T. (2020). Airborne route and bad use of ventilation systems as non-negligible factors in SARS-CoV-2 transmission. *Medical Hypotheses*, 141(April), 109781. <https://doi.org/10.1016/j.mehy.2020.109781>
- Domosh, M. (2004). Cultural landscape in environmental studies. In N. Smelser & P. Bates (Eds.), *International Encyclopaedia of the Social and Behavioural Sciences* (pp. 3081–3086). Elsevier.
- Ecdc. (2020). *Heating, ventilation and air-conditioning systems in the context of COVID-19 Target audience Evidence for transmission in closed spaces and the role of heating, ventilation and air-conditioning (HVAC) systems*. <https://www.ecdc.europa.eu/sites/default/files/documents/Ventilation-in-the-context-of-COVID-19.pdf>.
- Eiseman Jr, F. (1989). *Sekala and niskala: essays on religious, ritual and art, vol. I*. Periplus Editions.
- Farina, A. (2000). The cultural landscape as a model for the integration of ecology and economics. *BioScience*, 50(4), 313–320.
- Fathony, B., & Alfin, C. (2017). Optimalisasi Desa Wisata dengan Konsep Arsitektur Tradisional Dan Arsitektur Berwawasan Lingkungan Master Plan dan Analisis Perencanaan Desa Wisata Watulimo, Kecamatan Watulimo, Kabupaten Trenggalek. *Seminar Nasional Perwujudan Pembangunan Berkelanjutan Berbasis Kearifan Local Di Era Revolusi 4.0 Dan Era New Normal*, PAR-II-PAR-I-10.
- Guo, M., Xu, P., Xiao, T., He, R., Dai, M., & Miller, S. L. (2021). Review and comparison of HVAC operation guidelines in different countries during the COVID-19 pandemic. *Building and Environment*, 187(4800), 107368. <https://doi.org/10.1016/j.buildenv.2020.107368>
- Hildegardis, C., Saraswati, A. A. A. O., Putra, I. D. G. A. D., & Dewi, N. K. A. (2021). Comparison of Static Model, Adaptation Study, and CFD Simulation in Evaluating Thermal Comfort Based on Köppen Climate Classification System in Churches in Indonesia. *Journal of Engineering and Technological Sciences*, 53(6), 210606. <https://doi.org/10.5614/j.eng.technol.sci.2021.53.6.6>
- Hobart, A., Ramseyer, U., & Leemann, A. (2001). *The people of Bali*. Blackwell Publishers Ltd.
- Hosseini, G. O., Alipour, H., & Dalir, S. (2014). An Entrepreneurial Tourism Project through Agro-Tourism Farm in Iran. *Journal of Sustainable Development Studies*, 6(1), 48–63.
- Kamal, M. A. (2021). Assessment of traditional architecture of lucknow with reference to climatic responsiveness. *Architecture and Engineering*, 6(1), 19–31. <https://doi.org/10.23968/2500-0055-2021-6-1-19-31>
- Kohanski, M. A., Lo, L. J., & Waring, M. S. (2020). Review of indoor aerosol generation, transport, and control in the context of COVID-19. *International Forum of Allergy & Rhinology*, 10(10), 1173–1179. <https://doi.org/10.1002/alr.22661>
- Laliberte, R. (1996, September). Breathing uneasy: the truth about sick-dwelling syndrome. *SIRS Researcher Inc. Health, Health Magazine Family Media*, 63.
- Lu, J., Gu, J., Li, K., Xu, C., Su, W., Lai, Z., Zhou, D., Yu, C., Xu, B., & Yang, Z. (2020). COVID-19 Outbreak Associated with Air Conditioning in Restaurant, Guangzhou, China, 2020. *Emerging Infectious Diseases*, 26(7), 1628–1631. <https://doi.org/10.3201/eid2607.200764>
- Marcone, V. (2020). Reduction of contagion risks by sarscov-2 (Covid-19) in air-conditioned work environments. *Pain Physician*, 23(4 Special Issue), S475–S481. <https://doi.org/10.36076/ppj.2020/23/s475>

- Megahed, N. A., & Ghoneim, E. M. (2020). Antivirus-built environment: Lessons learned from Covid-19 pandemic. *Sustainable Cities and Society*, 61(May), 102350. <https://doi.org/10.1016/j.scs.2020.102350>
- Melikov, A. K. (2016). Advanced air distribution: improving health and comfort while reducing energy use. *Indoor Air*, 26(1), 112–124. <https://doi.org/10.1111/ina.12206>
- Miller, S. L., Clements, N., Elliott, S. A., Subhash, S. S., Eagan, A., & Radonovich, L. J. (2017). Implementing a negative-pressure isolation ward for a surge in airborne infectious patients. *American Journal of Infection Control*. <https://doi.org/10.1016/j.ajic.2017.01.029>
- Morawska, L., Tang, J. W., Bahnfleth, W., Bluyssen, P. M., Boerstra, A., Buonanno, G., Cao, J., Dancer, S., Floto, A., Franchimon, F., Haworth, C., Hogeling, J., Isaxon, C., Jimenez, J. L., Kurnitski, J., Li, Y., Loomans, M., Marks, G., Marr, L. C., ... Yao, M. (2020). How can airborne transmission of COVID-19 indoors be minimised? *Environment International*, 142(April). <https://doi.org/10.1016/j.envint.2020.105832>
- Myga-Piątek, U. (2011). Cultural landscape of the 21st Century: Geographical Consideration between Theory and Practice. *Hrvatski Geografski Glasnik*, 73(2), 129–140.
- Okech, R., Haghiri, M., & George, B. (2012). Rural Tourism as a Sustainable Development Alternative: An Analysis with Special Reference to Luanda, Kenya. *CULTUR: Revista de Cultura e Turismo*, 6(3), 36–53.
- Phelan & Sharpley. (2011). Exploring agritourism entrepreneurship in the UK. *Tourism Planning & Development*, 8(2), 121–136. https://research.edgehill.ac.uk/ws/files/20745103/Phelan_Sharpley_Exploring_Agritourism_Entrepreneurship_in_the_UK_Author_Post_Print.pdf
- Phiri, M. (2014). *Health Building Note 00-01 General design guidance for healthcare buildings*. UK Government.
- Pizam, A., & Mansfeld, Y. (1996). *Tourism, crime, and international security issues*. Wiley.
- Purnawan, R., Pitana, I. G., & Darma Putra, I. N. (2021). Cultural Landscape: Brand Knowledge Wisatawan tentang Bali dalam Online Travel Review Communication Platform. *Mudra Jurnal Seni Budaya*, 36(2), 254–263. <https://doi.org/10.31091/mudra.v36i2.1200>
- Putra, I. D. G. A. D. (2020). “Stay at home” for addressing COVID-19 protocol: learning from the traditional Balinese house. *Archnet-IJAR*, 15(1), 64–78. <https://doi.org/10.1108/ARCH-09-2020-0187>
- Putra, I. D. G. A. D., Lozanovska, M., & Fuller, R. (2015). The Transformation of the Traditional Balinese House in Tourist Villages: Maintaining the Culture and Obtaining Economic Benefit. *Applied Mechanics and Materials*, 747, 68–71. <https://doi.org/10.4028/www.scientific.net/amm.747.68>
- Putra, I. D. G. A. D., 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). <https://doi.org/10.3846/jau.2019.3692>
- Putra, I. D. G. A. D., Yana, A. A. G. A., & Dwijendra, N. K. A. (2017). SUSTAINABLE TOURISM AND FIRE SAFETY OF ACCOMMODATION FACILITIES IN TOURISM VILLAGES. *The 1 St Warmadewa University International Conference on Architecture and Civil Engineering: Sustainability, Design and Culture*, 80–84.
- Rai Remawa, A. A. G., & Rai Padmanaba, C. G. (2021). Ashta Bhumi, Panduan Pembuatan Lay Out Ruang Bangunan Hunian Rumah Tinggal Tradisional Bali Madya. *Mudra Jurnal Seni Budaya*, 36(1), 23–32. <https://doi.org/10.31091/mudra.v36i1.1321>
- Randelli, F., Romei, P., & Tortora, M. (2014). An evolutionary approach to the study of rural tourism: The case of Tuscany. *Land Use Policy*, 38, 276–281. <https://doi.org/10.1016/j.landusepol.2013.11.009>
- Salter, C. (1971). *The cultural landscape*. Duxbury.
- Shushma, H. (2012). Agri tourism in Karnataka-issues constraints and possibilities." 2.7 (2012): 106-111. *International Journal of Research in Commerce, Economics and Management*, 2(7), 106–111.
- Sigala, M. (2020). Tourism and COVID-19: Impacts and implications for advancing and resetting industry and research. *Journal of Business Research*, 117(January), 312–321.

Sugihamretha, I. D. G. (2020). Respon Kebijakan: Mitigasi Dampak Wabah Covid-19 Pada Sektor Pariwisata. *The Indonesian Journal of Development Planning*, IV(2), 191–206.

Tan, R. Y. D. (1967). The domestic architecture of South Bali. *Bijdragen Tot de Taal-, Land-En Volkenkunde/Journal of the Humanities and Social Sciences of Southeast Asia*, 123(4), 442–475.

Thatiparti, D. S., Ghia, U., & Mead, K. R. (2017). Computational fluid dynamics study on the influence of an alternate ventilation configuration on the possible flow path of infectious cough aerosols in a mock airborne infection isolation room. *Science and Technology for the Built Environment*, 23(2), 355–366.
<https://doi.org/10.1080/23744731.2016.1222212>

Trimariato, C. (2003). *Thermal efficient dwelling design: Bali, Indonesia*. University of Newcastle upon Tyne.

Wassmann, J., & Dasen, P. R. (1998). Balinese spatial orientation: some empirical evidence of moderate linguistic relativity. *Journal of the Royal Anthropological Institute*, 689–711.

World Health Organization. (2020). *Coronavirus disease (COVID-19) situation dashboard*.
<https://covid19.who.int/>

Yudiantini, N. M. (2018). Rumah Tinggal Tradisional Bali Aga di Desa Belantih, Kintamani. *Seminar Ikatan Peneliti Lingkungan Binaan Indonesia (IPLBI)*, 3(October), A101–A109.
<https://doi.org/10.32315/sem.3.a101>

Yudiantini, N. M., & Jones, D. (2015). The role of traditional regulation in the indigenous villages for conservation of village pattern. *Proceedings of 21st International Sustainable Development Research Society Conference, International Sustainable Development Research Society, Geelong, Victoria*, 10–12.

Zhang, Y., Feng, G., Bi, Y., Cai, Y., Zhang, Z., & Cao, G. (2019). Distribution of droplet aerosols generated by mouth coughing and nose breathing in an air-conditioned room. *Sustainable Cities and Society*, 51, 101721.
<https://doi.org/10.1016/j.scs.2019.101721>