

THE CONCEPT OF VERTICAL SANCTITY IN ENVIRONMENTALLY FRIENDLY STORE BUILDING DESIGN

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ABSTRACT

The increasing population demands the provision of increased residential infrastructure as well. As a result of development in a horizontal direction, it causes land-use change. The concept of vertical development is rejected by some people because they feel *cemer/leteh* when they enter the lower floors, therefore an understanding of vertical sanctity is needed in the design of high-rise buildings. This study aims to reveal the relationship between vertical sanctity and high-rise building design, and public acceptance of high-rise building designs in an effort to realize environmentally-friendly residential infrastructure. The method used is interviews with stakeholders and input data from questionnaires so that it is known the relationship between vertical sanctity and high-rise building design. The results obtained are that there is a relationship between vertical sanctity and high-rise building design and that people accept a minimum vertical distance of sanctity that is applied in the design of high-rise buildings. It is hoped that this vertical sanctity concept can be worldwide and accepted by the international community.

Key words: vertical sanctity, store, high-rise building, design

INTRODUCTION

In an effort to preserve local culture in the public, its existence must always be maintained and developed in everyday life. The concept of traditional development that develops development in a horizontal direction is starting to encounter obstacles, including the problem of land narrowing. If this situation continues, the currently available area will eventually become depleted and eventually, there will be a land-use change condition. To anticipate this, development efforts are carried out in a vertical direction by making multi-story buildings. This will lead to differences of opinion in certain communities. Some people will reject the construction of buildings in a vertical direction on the grounds of purity. But there are also people who can accept the concept of constructing high-rise buildings, as the reason to reduce land conversion, especially agricultural land, and to keep the environment sustainable.

Vertical sanctity as a *adiluhung* concept in Bali, which is believed to be global, is a vertical distance above the crown that must not be violated if it is associated with the making of rituals in Hinduism and the construction of buildings, especially high-rise buildings. The construction of high-rise buildings is an effort to minimize land use efforts in a horizontal direction. The construction of this high-rise building can be categorized as an environmentally friendly residential infrastructure. The demand for new land clearing will result in an increase in the population, either through births or migration from other areas. If this condition is not controlled immediately, the land conversion will be found more and more. The worst condition that can occur is the encroachment of green open land or productive agricultural land that is developed, turning into residential land. If this situation continues, it will be able to cause a disruption of natural sustainability.

The construction of high-rise buildings has been regulated that the height should not exceed 15 meters (Pemprov Bali, 2009). The height regulation is equivalent to the height of a coconut tree and it is assumed that the number of floors in high-rise buildings is four floors. With the construction of high-rise buildings, it is hoped that they will no longer use the land to the horizontal side so that green open land can be maintained. The emergence of pros and cons occurs when going to operate the building. People who are against it will not be willing to enter *mesulub* to the floor below. The assumption that develops in society is that they feel *cemer/leteh* when they are downstairs because they feel that they have been stepped on by those on the top floor. This feeling of *cemer/leteh* needs to be worked out so that when you are downstairs, this feeling no longer arises. By finding efforts to overcome this, it is hoped that efforts to suppress land conversion will be successful, as well as the pros and cons conditions will be minimized.

Vertical sanctity as local wisdom can be used as an effort to find a way out in this condition. Input from people who understand and are in charge of this will be highly expected, such as: *sulinggih*, *pemangku*, traditional elders, or stakeholders who are engaged and understand vertical sanctity. The vertical limits of sanctity found were as high as twelve *Guli* (Anonymous, *Lontar Surya Sewana*), one *hasta/arm* (Anonim, *Lontar Swamandala*), which was measured from the crown of the head to the top. This limit is expected not to be disturbed or in other words, this limit is the minimum limit for the floor height of the building above, and thus the floor limit of a high-rise building. The regulation of vertical sanctity limits found from several lontars will be able to minimize the pros and cons of using high-rise buildings. A more specific study is needed on this topic, in order to obtain infrastructure that is acceptable to the

community and to obtain environmentally friendly settlements.

The formulation of the problem raised in accordance with the description of the background above is: is there a relationship between vertical sanctity and the height of each floor of a high-rise building, also can the community accept the concept of vertical sanctity for the realization of environmentally-friendly residential infrastructure? With the formulation of the problem, the purpose of this study is to determine the relationship between vertical sanctity and the height of each floor of a high-rise building also to determine public acceptance of the concept of vertical sanctity in an effort to realize environmentally-friendly residential infrastructure.

Vertical sanctity is the main consideration in discussing doubts when going to the lower floors of a high-rise building. Feelings of *cemer/leteh* arising from not understanding that there is a vertical limit that can be done *mesulub* if the limit is not violated or less. Focus Group Discussion on vertical sanctity is a new thing to do, therefore the success of this study is expected to provide positive results to answer the doubts so far of some people who refuse to enter the lower floors of high-rise buildings. The minimum height that must be met as a vertical sanctity requirement is not as high as the existing space, but the minimum limit is twelve *Guli* (Anonymous, *Lontar Surya Sewana*), (Anonymous, *Lontar Purwaka Weda*). In other sources, the minimum limit is found to be one *hasta* (Anonymous, *Lontar Surya Mandala*). One *Guli* according to *Asta Kosala Kosali* which is the basic concept of development in Bali is a distance or length from the middle segment of the index finger (Saraswati, 2002). The length of the middle finger that is usually used belongs to the head of the family or the oldest in a family.

If the length of the middle segment of the index finger is measured, it is in the range of two to three centimeters, or the average can

be determined to be two and a half centimeters. Thus twelve *Guli* is equal to twelve times two and a half, so it is thirty centimeters. Based on the *Lontar Surya Mandala*, the minimum limit for vertical sanctity is one *Hasta*, which is equal to one arm, so the length of an adult's arm is between 35 (thirty-five) to 45 (forty-five) centimeters, so the average is 40 (forty) centimeters. If you look at the differences between the three sources, they are not much different, so these sources show data that are still close together.

In the cultural philosophy originating from the cosmos, religious philosophy inspired by Hinduism, vertical sanctity is a spatial concept that is used as the basis for making ceremonial and ceremonial facilities, which in turn is also used as a basis in the construction of houses or settlements. Space in the universe as the embodiment of the macro cosmos is always trying to be in harmony or balance with the microcosmos which in Hindu philosophy is man himself. Hindus always try to balance the universe with themselves. The real manifestation of this balancing effort is in the form of symbols which are believed to be the embodiment of the balance between the macro cosmos and the microcosmos. In reality, the macro cosmos and the microcosmos are different things, but in the concept of Hindu religious belief, both have similarities that influence each other and are used as a reference in the *rwa bineda* (two things that are different/dualistic) concepts. The difference that occurs and is very visible is the universe as a macro cosmos and the human body as a microcosmos, but both are believed to be formed from the same elements, namely The *Panca Maha Butha* (Puja, 1978). The universe as the macro cosmos is also referred to as *bhuana agung*, while the human body as the microcosmos is also often called the *bhuana alit*, these two forms are expected to always establish harmony to maintain harmony (Ardana, 1982). An in-depth study of vertical sanctity in this case is also an effort

to maintain harmony between the macro and microcosmos in an effort to minimize the pros and cons of using high-rise buildings.

As a civil engineering building that is not on the same plot, then a high-rise building that has different floors from one another, then the building can be said to be a building that has floors with different elevations. According to Sullivan and Arthur (2003), civil infrastructure is a basic need for physically organizing a structural system to ensure that the economy functions properly. The development of high-rise buildings in Bali is a bit slow as a result of local wisdom that cannot be understood and practiced more carefully. Arrangement of plants for reforestation is also often an obstacle in the application of high-rise buildings because reforestation has become a major requirement in residential development so that it looks more beautiful and can support environmental health. The existence of green plants is a demand for a cool atmosphere, the fulfillment of oxygen needs, and thermal comfort in a residential environment. Medl, et al (2017), conducted research on thermal comfort in urban areas with the presence of tall buildings, which can be done with vertical greening. Plants in pots can be attached to the wall so that the heat that occurs can be absorbed by the green leaves of plants attached to the wall. Furthermore, it is conveyed in this study that it can reduce land grabbing to the side so as to save the land. The construction of high-rise buildings is an effort to suppress land use in a horizontal direction. According to a study conducted by Kamaruzzaman (2018), limited land and the economic crisis demand the government's role in providing affordable housing. The existence of these demands often results in the opening of new land or using land whose designation is not for residential purposes, in the end, a building or residential building is erected. This is what is often referred to as land conversion.

Research conducted by Feng (2011), is about measuring the sound insulation of residential noise in Taiwan, which is comparing the sound insulation of the field with the standards used ISO 140-4 and 1407. The building being studied is a house building with a concrete floor, complete with tiles, and the adhesive mortar. The result of the research is that there is a difference in sound noise between the sound insulation in the field and the house by 5 to 9 dB which indicates that the noise in the house is influenced by lateral noise from the corridor. Therefore, there is no effect of floor height with the ceiling, but it is necessary to increase the insulation of fieldwork with surface decoration materials for the floor and ceiling of the building.

Fairus, et al (2001), conducted a study in Shah Alam, Selangor, Malaysia, that studies on high-rise buildings with two opposite sides. One of the buildings has two sides that are exposed to the outside environment, and the other has two sides that are covered by the walls of the building next to it. The result of the research is that air pollution that occurs in closed buildings is greater than in buildings exposed to the outside environment. Another similar study was conducted by Wan, et al (2011), a study conducted on high-rise buildings built in a row using the passive architectural method, where the variables: occupants, weather/climate were kept constant. The simulation results show that a high-rise building that is built in a row creates eight times longer thermal discomfort compared to a building that is not built in a row. The advice given is not on setting the floor height of the building, but on additional landscaping and additional ventilation. In this case, more careful thinking is needed regarding the design of high-rise buildings.

Many previous studies related to high-rise buildings have been carried out, including efforts to minimize land conversion. However, there has been no specific study that discusses efforts to suppress the pros and cons due to the refusal

of some people to enter the lower floors of high-rise buildings. This study was conducted to determine public acceptance of the concept of vertical sanctity which has been found in several *lontar* to be applied in daily life, especially in an effort to minimize the occurrence of rejection of the use of the lower floors of high-rise buildings.

RESEARCH METHOD

South Bali was chosen as the research location, precisely in Denpasar City and Badung Regency. This location was chosen because there are already many high-rise buildings and have great prospects for the addition of high-rise buildings.

Sources of data were obtained from several sources, namely: observation by direct observation of the object of study, interviews with several parties who are considered to have mastered the problem being studied, as well as filling out questionnaires, consisting of several questions which were directly answered by respondents.

The steps in the procedure for carrying out this study are: (first), to examine the issue of vertical sanctity by approaching the relevant stakeholders and then interviewing these stakeholders. Conducting a literature study on the sanctity of vertical and high-rise buildings, especially from relevant previous research; (second), determine the variables used in the study, make research instruments, including the preparation of questionnaires used to obtain data; (third), collecting secondary data needed, including completing primary data such as interviews with *sulinggih* and traditional figure; (fourth), perform data analysis and processing, in order to obtain complete and accurate conclusions.

Data analysis begins with a qualitative analysis when the identification of vertical sanctity in the spatial aspect is associated with its effect on high-rise buildings. Based on this, a theoretical framework can be developed as a guide for preparing interviews with stakeholders. The

vertical purity data obtained from filling out the questionnaire was then analyzed quantitatively by categorizing the answers on a Likert scale. This data was analyzed with a descriptive approach, in order to be able to draw conclusions about the studies that have been carried out.

RESULTS AND DISCUSSION

Vertical sanctity as local wisdom if it is associated with environmentally friendly residential infrastructure (in this case a high-rise building), then it is only natural to conduct a study from various aspects, especially from the cultural and religious point of view. Local wisdom that has been integrated into people's lives will be supported by culture and religious beliefs. Hinduism with various cultures that develop is something that has been integrated with people's lives so that both are often used as a basis in everyday social life. The results of filling out the questionnaire are research data. From the data obtained related to the relationship of vertical sanctity to the height of each floor of a high-rise building and the variable of public acceptance, an analysis can be carried out. Calculate the average value (mean) of related answers and public acceptance. The next step is to calculate the standard deviation, all scores obtained are converted using a five Likert scale reference to determine the percentage of linkage and public acceptance of the vertical sanctity concept in the categories: strongly agree, agree, hesitate, disagree, and strongly disagree. A total of 100 people were used as samples in this study, with relevant educational qualifications to provide information related to research problems, namely Doctor Degree = 5%; Master Degree = 13%; Bachelor = 49%; vocational = 5%, and high school = 28%.

From the collection of data, it can be shown: that 22 people strongly agree, 46 people agree, 27 people are hesitant, 3 people disagree, and 2 people strongly disagree. Looking at the data, shows that

68% of the sample stated that there was a relationship between vertical sanctity and high-rise building and accepted the concept of vertical sanctity in the design of high-rise buildings. As many as 27% expressed doubts because they did not understand the concept of vertical sanctity, in everyday life they often enter the lower floors of high-rise buildings and do not feel different. There are 3% disagree and 2% strongly disagree, because they already have a habit of not wanting to *mesulub* and if it is *mesulub* often arises pain in the head. Vertical sanctity when associated in space is often used as a reference in the layout/distance between *upakara* facilities in Hindu ceremonies. Likewise in the arrangement of building layouts in ceremonial infrastructure as well as building layouts for residences/houses. The design of the space height of each floor of a high-rise building should be guided by the minimum height of vertical purity (Wibawa, et al, 2021). If you want to build a high-rise building, you must pay attention to the minimum height required for vertical purity. Public Understanding of the existence of vertical sanctity limits is also very necessary so that if you understand it, it can reduce the occurrence of pros and cons when entering the lower floors of high-rise buildings.

In accordance with the results of research and interviews with stakeholders, especially those who understand vertical sanctity, it is stated that the link between vertical sanctity is definitely there, especially for the benefit of ceremonial infrastructure and for building/settlement construction. However, it is still recognized that there are still people who are adamant about not accepting the concept of vertical sanctity, so further studies are needed, such as finding alternative designs for high-rise buildings. However, with regard to public acceptance of the concept of vertical sanctity, the minimum distance applied in the construction of high-rise buildings, is generally acceptable.

The construction of high-rise buildings that are in accordance with the minimum requirements for vertical sanctity contained in the lontar, also needs to be socialized. The public will find it difficult to distinguish between high-rise buildings that are in accordance with the application of the minimum requirements for vertical purity and those that do not meet the requirements. Likewise, an understanding of the existence of vertical sanctity really needs to be socialized, because if you don't understand it, it will be difficult to accept the link between vertical sanctity and high-rise buildings. Several relevant stakeholders explained that in this case feelings play a role, therefore a minimum must be carried out so as not to further sharpen the pros and cons that occur. Overcoming this is by changing or revising the design of high-rise buildings, such as setting upstairs or installing an elevator outside the building, thereby eliminating the impression of *mesulub*.

From all opinions, both according to the results of interviews and the results of filling out questionnaires, there are still pros and cons to the community, about accepting or not the concept of vertical sanctity, the use of high-rise buildings, whether or not there are local regulations governing building heights. All these questions will be answered in time. If the community still persists in not wanting to *mesulub*, as long as an alternative that can be accepted by their feelings has not been found, then during that time, they will not be able to enter the high-rise building. Likewise, regarding the horizontal direction of development that can no longer be carried out, it is also impossible to stop the construction of settlements while the demands due to the increasing population cannot be dammed anymore.

CONCLUSION

Based on the description of the results and discussion, it can be concluded:

(1). The minimum height of vertical sanctity is related to the height of each floor of the high-rise building being built. (2). Most people can accept the minimal concept of vertical sanctity through more intensive socialization. If there are still people who cannot accept the concept, then alternative building designs can be made so that the pros and cons can be minimized. (3). This study prioritizes efforts to accept the concept of vertical sanctity in the design of high-rise buildings. Community understanding of local wisdom is expected to be better so that it is not eroded by the times.

The suggestion that can be given is, that every time you build a high-rise building, you should pay attention to the minimum height of vertical sanctity because the results will be better and can meet the requirements for the height of the occupants/users. It is hoped that this concept will continue to be socialized and applied so that it can be accepted by the general public regionally, nationally and internationally.

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