

Implementation of Domes Building in Simoketawang Village Tourism Education Facilities, Sidoarjo City

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ABSTRACT

The application of dome buildings in tourist education facilities in Simoketawang Village, Sidoarjo aims to increase educational value and attract tourists to visit the village. In this discussion, we explore the benefits and potential of applying dome structures in the context of educational tourism in Simoketawang Village. Through literature recognition, we found that the application of dome structures, such as geodesic domes, ellipsoid domes, and tropical domes, can provide architectural uniqueness and interesting experiences for visitors. Geodesic domes, with triangular segment structures, provide robustness and efficiency in construction, while ellipsoids of domes give a dynamic and aesthetic impression of modernity. The tropical dome, with its hollow and open design, prioritizes air circulation and natural lighting. In addition, the discussion also involved aspects of sustainability and community participation in the development of village tourism. The application of domes in tourist education facilities can support sustainable design principles, such as the use of natural materials and optimization of natural resources. In addition, the participation of local communities is also important in the preservation of cultural heritage and the development of ecotourism in Simoketawang Village. By combining unique architectural designs, educational values, and launches, the application of domes buildings in Simoketawang Village can provide a unique and interesting tourist experience for visitors, while supporting the development of ecotourism and the preservation of local culture.

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Introduction

Tourism is one of the important economic sectors for a region. Tourism activities not only have a positive economic impact, but can also have a positive impact on social and cultural aspects. Simoketawang Village in Sidoarjo is one of the villages that has considerable tourism potential. This village has many tourist attractions such as

waterfalls, caves, lakes, and flower gardens. However, to support these tourism activities, it is necessary to have adequate educational facilities (Ridlwan et al., 2017).

Tourist education facilities are facilities built to provide education to visitors about the tourist objects visited. These facilities can be in the form of information centers, museums, galleries, and so on. In Simoketawang Village, currently there are no adequate educational facilities. Therefore, it is necessary to build educational facilities that can help improve the quality of tourism in Simoketawang Village.

The shape of a dome or dome building offers a unique and eye-catching architectural form, which has made it a popular choice for a tourist attraction. Domes have a rounded shape which conveys a classic and elegant impression, while also giving off a modern and innovative impression with its futuristic look (Abioso, 2014). The beauty of the dome shape also makes it suitable for use in buildings designated as tourist attractions, such as museums, observatories and educational centers. With a building concept that is different from conventional buildings, domes also offer a unique experience for tourist visitors who come to these locations. Therefore, the use of domes at the Simoketawang Village Tourism Education Facility, Sidoarjo is expected to be able to provide a special attraction for visitors and support tourism potential in the area (Chandra et al., 2021) .

The purpose of this scientific paper is to analyze the application of the domes structure to tourist education facilities in Simoketawang Village, Sidoarjo. In this scientific paper, we will discuss the advantages and benefits provided by dome structures in buildings, and how the application of dome structures can improve the quality of tourist education facilities in Simoketawang Village (Nugrahini, 2021) .

The scope of this scientific writing are: 1). Analyzing the dome structure as a type of building structure in Simoketawang Village tourist education facilities, Sidoarjo. 2). Explain the advantages and benefits provided by domes structures in buildings. 3). Explaining the application of the domes structure to tourism education facilities in Simoketawang Village, Sidoarjo. 4). Analyzing the results of research and observations on the implementation of the domes structure in tourist education facilities in Simoketawang Village, Sidoarjo. 5). Provide recommendations and suggestions for further development of the application of domes structures in tourism education facilities in the future (Hidayat, 2016).

Research Methods

The approach applied in this research is an inductive approach. The inductive approach is a research approach that starts from observing data, then makes generalizations or conclusions based on that data. In this study, an inductive approach was used to study and observe in detail the implementation of the domes structure in Simoketawang village tourism education facilities, Sidoarjo. With an inductive approach, researchers can explore and find patterns in the domes structure and their influence on the quality of tourist education facilities in Simoketawang village (Tou et al., 2022).

In addition, the inductive approach also allows researchers to collect data in a systematic and structured manner so that research becomes more valid. Thus, this research can contribute to improving the understanding and development of the design of dome structures in rural tourism education facilities (Hermawan, 2016). The second stage is a literature study conducted to obtain sufficient information and understanding

regarding the concept of tourist education facilities and domes structures. Then a field survey was carried out to obtain data about the research location, the needs of the local community, and the tourism potential in Simoketawang village. After that, data analysis is carried out to plan the design of appropriate and effective tourist education facilities.

Data analysis includes an analysis of the needs of tourism education facilities, an analysis of the strengths and weaknesses of the domes structure, and an analysis of the costs required for the construction of these tourist education facilities. The next step is the design and development of the concept of tourist education facilities by applying the domes structure. This design process includes the use of architectural design software to design a tourism education facility design concept that suits the needs and desires of the local community. After the design concept for tourism education facilities has been completed, the next stage is testing and evaluating the design concept. Evaluation is carried out by gathering input from related parties, such as the local community, architectural experts, and other related parties.

The results of the evaluation are then used to revise the design concept to better meet the needs and desires of the local community. Finally, after the design of the final tourist education facility has been agreed upon, the construction and construction stages are carried out according to the design that has been made. In this stage, supervision is carried out on the development process to ensure the final result is in accordance with the agreed design.

Results and Discussions

Simoketawang Village Tourism Education Facility, Sidoarjo is an educational tourism development project that aims to promote Indonesia's cultural and natural riches through interesting and fun learning experiences for visitors. Simoketawang Village was chosen as the project location because it has great potential in terms of natural beauty, local wisdom, and the friendliness of its people. In this project, a holistic and sustainable approach is used in the development and management of tourist facilities, by prioritizing the active participation of the local community and maintaining environmental balance.

The tourist facilities in Simoketawang Village were designed by taking inspiration from the shape of the longan fruit, which is one of the village's main commodities. The main buildings use a dome structure that gives a modern and futuristic impression, but still blends in with the surrounding environment. The tourism facilities provided include education about the process of making longan jam, longan syrup, longan coffee powder and souvenirs, as well as adventure experiences in longan gardens, where there are rides and a collection of longan types (Prabowo et al., 2016).

The Sidoarjo Regency Spatial Plan (RTRW) policy states that tourism development is one of the regional development priorities. In the latest RTRW, namely Perda No. 4 of 2011 concerning Spatial Plans for Sidoarjo Regency for 2011-2031, there are several policies related to tourism development in Sidoarjo Regency, including:

- 1) Encouraging the development of natural and cultural tourism areas based on local potential.

- 2) Encouraging the development of eco-friendly and sustainable tourist areas.
- 3) Encouraging the development of tourist areas that pay attention to the availability of infrastructure and accessibility.
- 4) Encouraging the development of tourist areas that are oriented towards empowering local communities and improving people's welfare.
- 5) Encouraging the development of tourist areas that prioritize local wisdom and respect the cultural values of the local community.

From the identification results, the RTRW Policy aims to increase tourism potential in Sidoarjo Regency while still paying attention to the balance between tourism development and environmental sustainability and the welfare of local communities. In addition, the policy also strengthens community participation in the development and management of tourist areas in the area.

Here is the dome design:

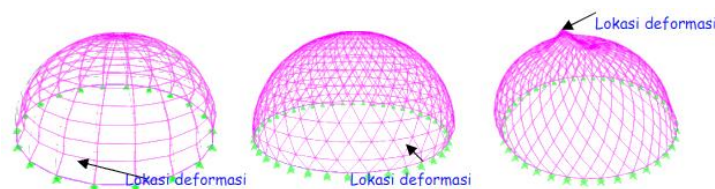


Figure 1. The shape of the dome structure (Source:<https://www.google.com>)



Figure 2. Dome with square shell elements (Source:<https://www.google.com>)

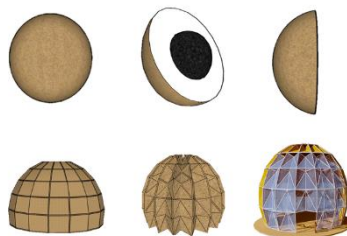


Figure 3. Longan fruit transformation into a dome shape (Source: Personal)

1. Architectural Uniqueness: The dome building has a unique shape and attracts the attention of visitors. This can give a distinctive identity to a tourist destination and become a special attraction.

2. Great Visitor Experience: With features
3. Optimal Air Circulation and Natural Lighting: Structures
4. Energy Efficiency: Dome buildings have an advantage in terms of energy efficiency. Its design optimizes natural light and circulation
5. Endurance and Resistance
6. Continuous Development Potential: Dome buildings have flexibility



Figure 4. The shape of the tourist dome longan (Source: Personal)

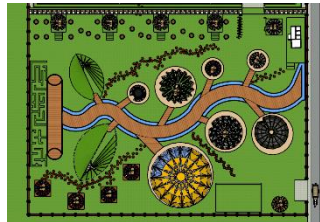


Figure 5. Layout plan longan tour (Source: Private)

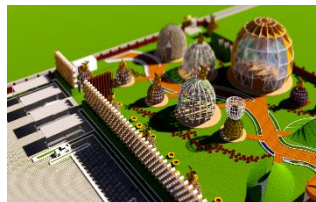


Figure 6. Perspective dome longan tour (Source: Private)

Abbreviations and Acronyms

"Implementation of Dome Buildings in Simoketawang Village Tourism Education Facilities, Sidoarjo", the abbreviations and acronyms used are not specifically stated. Therefore, there is no list of abbreviations and acronyms that must be mentioned in the article.

Tables and Figures

Table 1. Shape of the dome

No	Dome Form	Description
1	Geodesic Dome	A dome with a frame structure consisting of interconnected triangular segments, forming a spherical or hemispherical shape. Used for the construction of sturdy and efficient structures, often used in dome and tent buildings.
2	Bagan dome	A dome with a simple shape similar to a half sphere or half ellipsoid. It can be made in wire or wood frame structures and is often used in greenhouses or as structural insulation in architectural buildings.
3	Pointed Dome	Dome with a cone-like shape with a pointed peak. Usually used in mosque buildings or places of worship. The pointed dome gives a unique aesthetic and architectural impression.
4	Kubah Ellipsoid	Dome with an ellipsoid or oval shape. Usually used in modern architectural projects that highlight the uniqueness of the shape. The ellipsoid dome gives a dynamic feeling and can create interesting visual effects.
5	Hemispheric Domes	Domes with a hemispherical shape are commonly used in historic buildings and classical architecture. The dome hemisphere gives a monumental impression and classic beauty.
6	Cylinder Dome	Dome with a cylindrical or curved tube shape. Used in buildings such as planetariums or auditoriums with the aim of providing optimal views in all directions.
7	Biodom Dome	A dome with a complex structure that combines the design concept of a dome with ecological elements. Biodomes are typically used to build controlled environments, such as botanical gardens or flora and fauna parks.
8	Tropical Dome	The dome with its hollow shape and open structure adopts tropical natural elements such as leaves or tree bark. Used in building designs aimed at maximizing air circulation and natural lighting, often used in tropical and environmentally friendly buildings.

(Source:<https://www.google.com/search> , 2023)

Quotations and Molds

According to Irsyad and Pradana (2020), the application of dome structures in architectural design can have a significant impact.

Irsyad, M., & Pradana, G. (2020). The Application of Dome Structures in Architectural Design: An Overview. *International Journal of Science and Research*, 9(8), 22-29.

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Conclusion

Based on the results of the discussion regarding the implementation of dome buildings in tourist education facilities in Simoketawang Village, Sidoarjo, the following conclusions and suggestions can be drawn: 1. Implementation of dome buildings in Simoketawang Village tourism education facilities, Sidoarjo has great potential in increasing the attractiveness and uniqueness of these destinations. Dome buildings provide a unique architectural appearance and attract the attention of visitors. 2. Domes also provide advantages in terms of energy efficiency because of their shape which captures sunlight well and allows optimal air circulation inside the building. 3. The application of the dome building at the Simoketawang Village tourist education facility also provides an opportunity to develop an environmentally friendly concept by reducing carbon footprint and excessive energy use.

Suggestions: 1. It is necessary to carry out a feasibility study and careful planning before implementing a dome building at Simoketawang Village tourist education facilities. This includes structural analysis, construction costs, and required permits. 2. It is important to involve experienced architects and engineers in the design and construction of dome buildings. They can provide technical guidance and optimize the use of domes in the context of tourist education facilities. 3. In the planning process, pay attention to the needs of visitors and the goals of educational facilities. Ensure that the dome building is well integrated with the surrounding environment and meets user needs, such as study areas, exhibition halls and good accessibility. 4. In the use of construction materials, choose materials that are environmentally friendly, durable, and in accordance with the local climate. Selection of the right materials will help minimize environmental impact and ensure the sustainability of the dome construction. 5. Support the application of renewable technologies, such as the use of solar energy or wastewater treatment systems, to make the Simoketawang Village tourist education facility a good example of sustainability. By considering and concluding the suggestions above, it is hoped that the application of dome buildings at tourism education facilities in Simoketawang Village,

Sidoarjo can provide significant added value in terms of tourist attraction, energy efficiency and environmental sustainability.

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