

Architectural Development of Lusi Island Tourism and Natural Conservation Area in Sidoarjo Regency

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Abstract: Lusi Island was formed from Sidoarjo mud in Sidoarjo, East Java, Indonesia. This artificial island can be developed into a mud-based tourism area that represents natural events and conservation in mangrove forests. Based on regional architectural principles, this research is aimed at developing and designing educational tourism areas including creating tourist zoning, facilities and supports including educational tourism. The process of designing the Lusi Island Tourism and Nature Conservation Area was carried out by combining data from field surveys, literature studies and precedent studies. The research results show that the tourism area created includes mangrove planting activities including witnessing the Lapindo mud remains which is supported by adventure tourism, such as off-roading, camping and outbound. The facility space program includes accommodation, prayer room, toilets, culinary center, and supporting space consisting of waste water management installations. The benefits of developing Lusi Island as a tourism and nature conservation area that applies the principles of building environmentally friendly and sustainable areas as well as tropical architectural buildings to become the main attraction for tourists.

Keywords: architectural development, artificial island, natural conservation, tourism area

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Introduction

It is commonly stated in many resources that an artificial island or man-made island is an island that has been constructed by humans rather than formed through natural processes. According to Sreekumar & Gazi (2020) in their "A Study of Artificial Islands" (PDF), artificial island construction is a phenomenon that is seen on a rising scale in modern times. Artificial islands can be built for many different reasons, and these reasons are only increasing as the world faces the looming issue of space scarcity. Some other scholars also give their own perspective on such an island such as Wang (2023) and Zheng et al. (2020).

Sidoarjo Regency in East Java, known as Delta City, offers a tourist attraction in the form of an artificial island formed from mud deposits. Lusi Island, covering an area of 94 hectares, was formed as a result of a mudflow disaster (Pryambodo et al., 2016), has officially become a tourist destination managed by the Sidoarjo Regency Government, and received recognition as the second most popular destination in Indonesia in 2019 (Zain, 2021).

Currently, Lusi Island is being developed as a tourist destination that focuses on mud, but still requires further improvements to fully utilize its potential, including in the aspect of nature conservation, especially mangroves.

In the long term, Lusi Island can develop into a tourist spot with types of adventure activities, such as off-roading, camping and outbound, and so on. Given the background and situation, in the future Lusi Island can be developed as a tourism and nature conservation area with the principles of an environmentally friendly and sustainable area, with buildings that adapt to tropical climates for the comfort of visitors.

Kawasan wisata (tourism area) according to Law Number 10 Year 2009 concerning Tourism (Undang-undang Kepariwisata Nomor 10 tahun 2009), is an area that has a certain area that is built for tourism activities. Regarding tourist attractions, a tourism area must fulfill the 4A principles, namely attraction, accessibility, amenities, and ancillary (Cooper, 1993).

Tourism is the activity of traveling to a place for recreation, self-development and increasing knowledge. It is explained in Koran Kaltara (2022) that tourism development can improve the quality of an area and attract more tourists. In general, the definition of tourism is a trip undertaken by individuals or groups with the aim of enjoying themselves. In the Law on Tourism (Government of the Republic of Indonesia, 1990), tourism includes all kinds of tourism activities served by the government, community or entrepreneurs along with their facilities.

So many scholars have defined what tourism is, as in the latest works from Abram et al. (2021), Aleksanyan (2020), Holloway & Humphreys (2022), Page, & Connell (2020), and Santos et al. (2022). In short, tourism is an activity carried out by people or groups of people, namely by traveling together with the aim of expanding knowledge, having fun and so on. This means that tourism is activities where someone travels to a place that is not their residence for a while.

Tourism can be differentiated based on the motives of tourists who visit a place, namely (1) cultural tourism, which aims to broaden their outlook on life and study customs or artistic culture; (2) marine tourism, which involves recreational activities at sea, beaches or islands; (3) nature reserve tourism; (4) agricultural tourism (agrotourism), which is a combination of tourism and agriculture or plantations; (5) ecological tourism, which attracts tourists to care about nature and socio-cultural conservation; and (6) geological tourism, which utilizes the potential of natural resources as the main object and encourages understanding of the environment (Pitana & Gayatri, 2005).

Activities in tourism areas utilize the natural potential available, including sports such as jogging, outbound and cycling; site tourism to enjoy natural beauty; outdoor learning such as photography and field trips; conservation programs for education and sustainable conservation; as well as festivals that support the sustainability of natural resources. Activities in tourism areas utilize natural potential, including: (1) Sports: Such as jogging, outbound and cycling; (2) Site Tourism: Enjoying the beauty of nature; (3) Learning: Photography and outdoor field trips; (4) Conservation: Education and nature conservation. (5) Festival: Events that support the sustainability of natural resources.

The design of this tourism and nature conservation area adopts a tropical architectural theme, choosing buildings that are suitable for the warm tropical

climate thanks to their adaptability. The focus of this adaptation is on increasing air circulation and utilizing natural materials such as wood to maximize comfort.

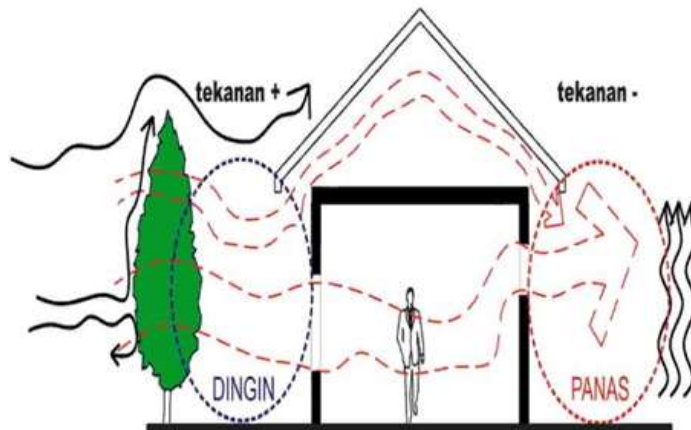


Figure 1. Schematic illustration of air flow in a building

In practice, overcoming heat radiation can be done with sun shading or secondary skin while choosing materials that allow natural light to enter.

Methodology

Jurong Lake Garden in Singapore is a 90 hectares national park with a unique design that offers comfort and tranquility. This garden is divided into several themes: Lakeside Gardens on the west side, Chinese and Japanese Gardens in the middle, and Promenade Gardens on the east Lakeside Gardens.



Figure 2. Map of Jurong Lake Garden.

Angke Kapuk Nature Tourism Park, North Jakarta, is part of the Angke Kapuk Mangrove Forest covering an area of 99.82 hectares. This area includes a wildlife sanctuary and mangrove tourism park with facilities in the form of camping huts, a lesehan canteen, children's playground, bicycle paths, as well as water tourism activities and planting mangrove seedings.



Figure 3. Pantai Indah Kapuk Mangrove Park

The Aceh Tsunami Museum (Bustami, 2019) was inaugurated in 2009, built with the aim of commemorating the earthquake that caused a tsunami in 2004 in Aceh. This museum is an education center and an evacuation center if a tsunami disaster occurs at any time. The Tsunami Museum consists of two floors. The first floor presents track records and dioramas of tsunami events, and tsunami artifacts. The 2nd floor of the Tsunami Museum provides various learning tools such as a library, props room and 4-dimensional room.



Figure 4. Tsunami Museum, Aceh

The process of designing the Lusi Island Tourism and Nature Conservation Area was carried out by combining data from field surveys, literature studies and precedent studies.

The design location is located on Lusi Island, which has a variety of mangroves, beautiful natural views, and can be accessed only by boat or speedboat from the Tlocor Marine Tourism pier in Tlocor Hamlet, Jabon District, about 3 km from the pier and 21 km from Sidoarjo City.

In designing the Lusi Island Tourism and Natural Conservation Area in Sidoarjo Regency, the method used was a qualitative one. In the previous studies, Anwar & Ardhiati (2023), Gunawan & Ardhiati (2022), Herlambang & Ardhiati (2023), Kholis (2023), and Subagyo & Adi (2023) applied the same method but different object of study. Moreover, this study is about the Lusi Island which have never been designed by those architectural scholars.



[Source: Maps.google.com, 2024]
Figure 5. Location of Lusi Island

Results and discussion

The Lusi Island has facilities in the form of footpaths, pavilions and recreational facilities. According to regulations, Lusi Island must provide 40% of space for tourism buildings, 10% for public facilities, and 50% for green open space and parking.

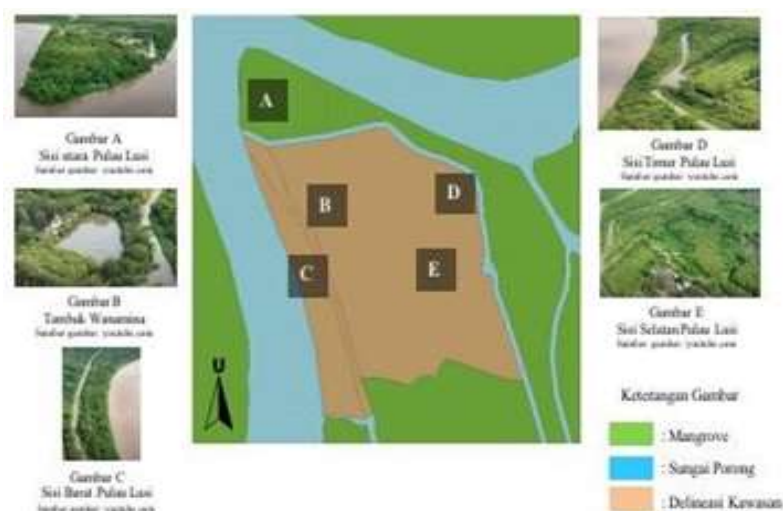


Figure 6. Site location analysis

The design of the Lusi Island tourism and nature conservation area in Sidoarjo Regency is planned to be divided into five zones, namely: (1) 1. Cultivation Zone, designed for mangrove and milkfish, tilapia and shrimp cultivation activities. This area consists of open space or ponds. (2) Recreation Zone, is a recreation area in the form of camping, lodging, outbound, offroad and fishing ponds, so that visitors get an interesting experience. (3) Education Zone, is a learning area for visitors who want to know directly about the process of mangrove cultivation and fisheries that take place at the location, the history of

the Lapindo mudflats and nature conservation. This zone contains the museum building, auditorium, research lab, and library. (4) Commercial Zone, is an area where buying and selling goods and food and drinks is carried out, namely in the form of a food court and souvenir shop. (5) Supporting Zone, plays a role in supporting the continuity of educational, cultivation, recreational and commercial activities, namely in the form of management rooms, toilets, prayer rooms, security, warehouses, MEP and docks.

The selection of vegetation in the Lusi Island tourism area follows the concept of Tropical Architecture, namely considering dry and rainy climates, so that the atmosphere and ventilation are maintained for comfort and protection for visitors. The ground pavement area uses wood which gives a natural and tropical impression.



Figure 7. Determination of regional vegetation types

In the process of designing this tourism area, an analysis of the view potential is carried out, which is viewed from two directions, namely the inward view and the outward view. The view into the site only has two views, namely from the west and north sides of the area, namely the Porong river. Therefore, building facades in the area must be maximized by highlighting distinctive characteristics so that visitors feel interested.

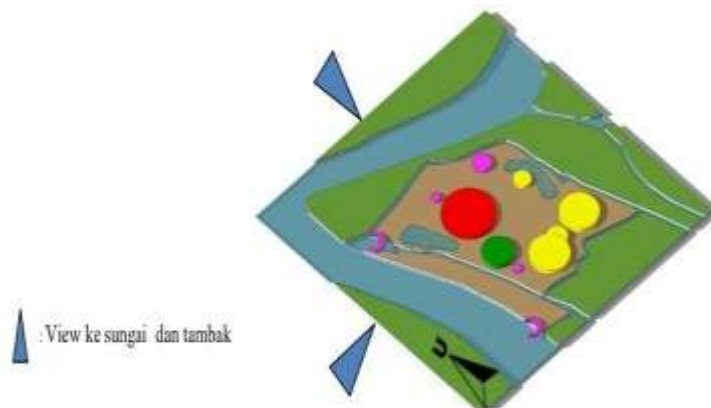


Figure 8. Analysis of the inside view

Views towards the outside of the area are used to maximize the potential views from inside to outside the area. The Lusi Island tourism area has very potential views to the outside, namely views of the west, north and east sides of the river and pond areas and views of the south side of the area in the form of mangrove expanses.

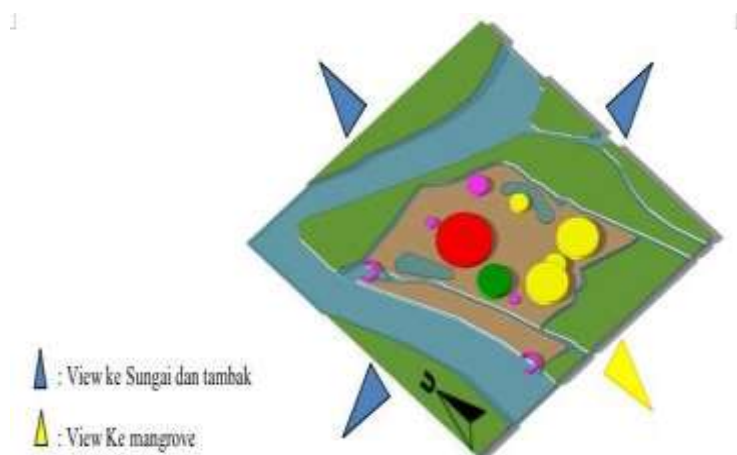


Figure 9. Analysis of the inside view

There are 2 types of regional circulation concepts in this area, using bicycles and walking. Visitors will then pass through a road that is around 3 meters wide and next to the pedestrian path there will be a bicycle path that is around 2 meters wide.



Figure 10. Regional circulation concept

The circulation system built in the area is prioritized for pedestrians, on floating paths, aiming at places that have the potential for interesting views.



Figure 11. Overview of the circulation route

Conclusion

The tropical architecture theme was chosen for the design of the Lusi Island Tourism and Nature Conservation Area in Sidoarjo Regency. The facility space program covers accommodation, prayer room, toilets, culinary center, and supporting space consisting of waste water management installations.

The conceptualization process is aimed at solving problems according to real conditions in the field. It is hoped that this design concept can be realized to improve conditions on Lusi Island as a leading tourist location in Sidoarjo Regency.

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