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Pantai Labu Fish Auction Place with an Ecological Architectural Approach

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ABSTRACT

Geographically, Indonesia is the largest country in the archipelago. The length of Indonesia's main coastline is known to reach 81,000 km. Based on these results, a fishery management area is needed that is appropriate and as high as possible to ensure the management of fisheries that are rich in marine animals. Pantai Labu Fish Auction Place is a potential place for fisheries. The marine sector is quite large, including capture fisheries, power culture fisheries the processing and marketing of fishery products. As well as supported by Supervision and other activities. One of the Fish Landing Places in Deli Serdang Regency is Pantai Labu Fish Auction Place. Fishing in Pantai Labu is important because the livelihood of most Paluh Sibaji people is fishing. However, the situation at the fish auction may have improved, leaving many customers feeling unhappy. Not only buyers but fishermen, the main actors in this fish auction site, also need qualified facilities. The application of ecological architecture in the renewal of the Fish Auction Place is one way to be applied in the future. Ecological architecture is vital in designing this fish landing site because an environmental architecture uses natural elements closely related to this Fish Auction Place.

Keywords: fish aution place, Paluh Sibaji

1. Introduction

Indonesia is a country with abundant marine wealth. This happens because Indonesia consistently exports fish yearly to countries that need fish supplies. Based on data from the Central Statistics Agency for 2020, Indonesia exports around 57,694.3 tons of fish. There are several export destinations for marine products from Indonesia, Malaysia, Japan, Singapore, and other large countries. Indonesia has the 3rd highest marine product in the world besides China and India [1].

Indonesia is a country that adheres to the principle of an archipelagic state; based on this statement, inter-island waters are not an accessible area but are included On the territory of the Republic of Indonesia (RI). The Djuanda Declaration inaugurated into Law No. 4/PRP/1960 concerning Indonesian Waters resulted in the total area of the Republic of Indonesia being 2.5 times the previous area. Previously, the Republic of Indonesia had an area of approximately 2,027,087 km² to 5,193,250 km². Counting 196 straight lines from the extreme point of the island, the length of the imaginary border Indonesia is 8,069.8 nautical miles. The Juanda Declaration was adopted at the 1982 [2].

The declaration was later re-agreed in Law Number 17 of 1985 concerning the 1982 UNCLOS ratification, which stated that Indonesia was an archipelagic country. According to Janhidros (2006) in Rucapable (2013), the land area of Indonesia is ± 2,012,402 km2, and the water area is ± 5,877,879 km2. This data later became evidence that Indonesia is the largest archipelagic country recognized by the international community.

Sumatera Utara, with the capital city of Medan, has many potential marine objects. Sumatera Utara is one of the provinces chosen to be a national tourist area. Sumatera Utara has diverse natural resources which can be used as tourist objects. One of the regencies in Sumatera Utara is the Deli Serdang Regency [3]. Deli Serdang Regency has a vast coastline, white sand, and beauty that residents can utilize as a tourist attraction. Deli Serdang Regency may be in the field of Fisheries and Marine Affairs. The position of the Deli Serdang Regency is quite strategic, as it is directly connected to the Malacca Strait, the busiest shipping lanein the world. Deli Serdang Regency is surrounded by the sea and is spread over four sub-districts. One of the sub-districts where the fish auction is located is Pantai Labu.

Pantai Labu Fish Auction Place (TPI) is located on the river path, which is a little small. TPI Pantai Labu has a small and limited wharf capacity. This is due to the unfavorable location conditions, so the number of fishing boats anchored is limited. Several factors make the location less likely, such as a relatively narrow area, circulation density, or shallow waters, so several ships are diverted to dock at the closest place to the TPI location.

The location of TPI is generally found in fishers' settlements, so the development of the pier and the site's management should be given more attention. There are several TPI in a district according to the area of the available fishing settlements. The TPI location is usually the local Regional Business Cooperative (KUD) management, which the local government assists. The KUD and the Directorate General of Fisheries carry out the auction administration process. Meanwhile, the control of the scope of operational services and the provision of marine products is managed by the local fishers' KUD [4].

Fish Auction Place (TPI) is a market usually located in a fish landing port/base, and in that place, there is a sale of fish/sea products either by auction or not (not including TPI that sells/auction land fish). The TPI must meet the following criteria. Fixed place (not moving): Have a building where fish sales transactions are carried out. Someone is coordinating the auction/sale procedure. Get permission from the authorized agency (Fisheries Service/Local Government) [5].

1.1. Ecological Architecture

Ecological architecture is a concept that combines environmental science and architectural science. Ecological architecture is a technique that is carried out by minimizing environmental damage. The ecological architecture uses energy, water, and other resources to create a building or environment. The ecological architecture contains several sections, such as biological, alternative, solar, bionic, and sustainable development [6]. The nature of holistic ecological architecture is outlined can be seen in figure 1.

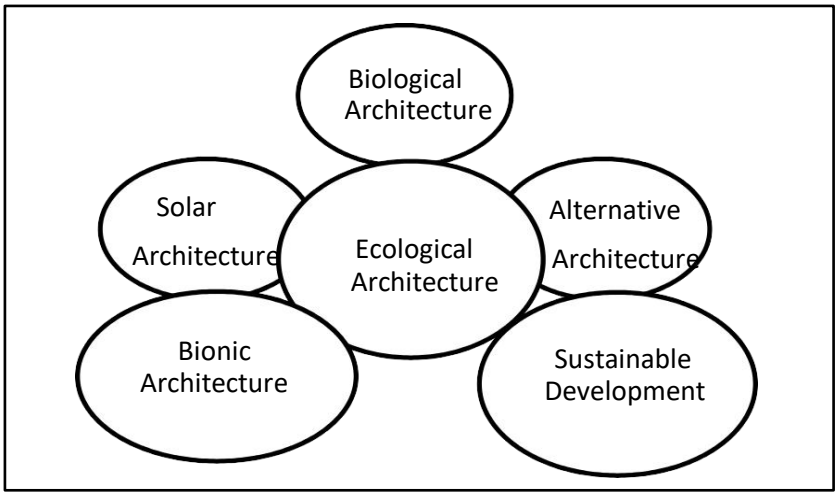

Figure 1 Basic Ecological Architecture

Ecological architecture is not based on what should happen in architecture because no unique characteristics are applied as standards or standard sizes; this happens because ecological architecture creates harmony between humans and the surrounding natural environment. This shows that environmental architecture is more complex, vital, and dense than other architectures [7].

2. Method

Spatial management is based on the method of solving the problem at the Pantai Labu Fish Auction Place (TPI) is qualitative research. Qualitative research is a type of research that explores and gains the most profound understanding of a group or individual originating from social problems. Qualitative research is used to research history, social phenomena, community life, behavior, and others [8]. The approach can obtain and understand something behind the wonder that is happening and is challenging to reach. Based on this qualitative method, the research will be conducted through observation and field data collection at the Fish Landing Site (TPI) in Palu Sibaji village, Pantai Labu sub-district. This design uses 3 data collection, namely observation, questionnaires, and documentation.

3. Result and Discussion

Based on the needs of the Pantai Labu Fish Market (TPI), the need for more space is one of the main problems. The Pantai Labu Fish Landing Site redesign is expected to answer the problems that occur. The demand for culinary seafood places that previously did not exist in the Pantai Labu area and its surroundings are expected to be able to answer existing needs. The design area for the Pantai Labu Fish Auction Place is 3000m^2. The Pantai Labu Seafood Culinary Tour, which will be planned as a multi-mass, has two opposite sites and is separated by a direct coastal stream. With an area of 1.9 ha, this site will Function as a culinary seafood center. The existing condition of the culinary center is an added function that functions as salted fish processing.

Meanwhile, the existing TPI site will be redesigned as planned. The site area is 3000m2 with flat land contour conditions. The TPI site is directly adjacent to the coastal stream, making it easier for fishers to transport marine products. Paluh Sibaji Village is located on the East Coast of Sumatera Utara, which directly faces the Melaka Strait. It has a village area of 206 Km2, Pantai Labu has the following territorial boundaries. To the north, by the Malacca Strait / Pantai Labu Pekan Village, East of Denai Bird's Nest Village / Denai Kuala Village, Southside with Pantai Labu Pekan Village, West side with Labu Pantai Labu Pekan Village. Paluh Sibaji Village, Pantai Labu Subdistrict, is one of the coastal areas of Deli Serdang Regency, which has the potential for significant enough marine tourism [9].Fish Auction Place is one location that is quite feasible to be developed. The trading activities and management of existing marine products cannot be processed optimally, so they have yet to be able to support the community's economy. There are several obstacles, one of which is in a building that needs to be more spacious so that some traders make tents which then affect other activities in the TPI Pantai Labu area. The influence can be a decrease in activityand an increase in activity. This can be seen in figure 2.

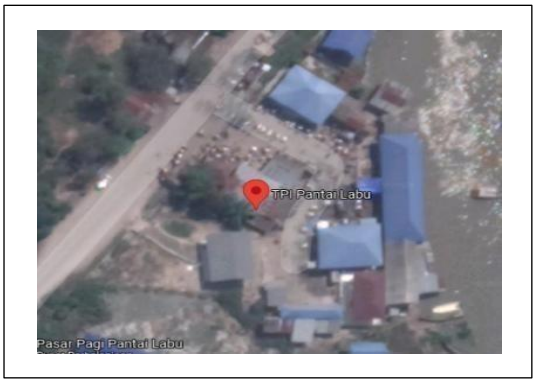

Figure 2 Site Project in Fish Auction

3.1. Site Potential

This location has great potential for auctions as it receives a lot of visitors. Because the fish auction site (TPI) cannot be used as a selling platform the condition of the existing buildings is not well maintained, Parking lots that are not available on-site appear to be poorly maintained. Orientation of the site to the river flow that

supports; efforts are made for the place to be located in an environment with a harmonious building appearance. The location is only 10 minutes from Kualanamu International Airport and 35 minutes from Lubuk Pakam District. This can be seen in figure 3.

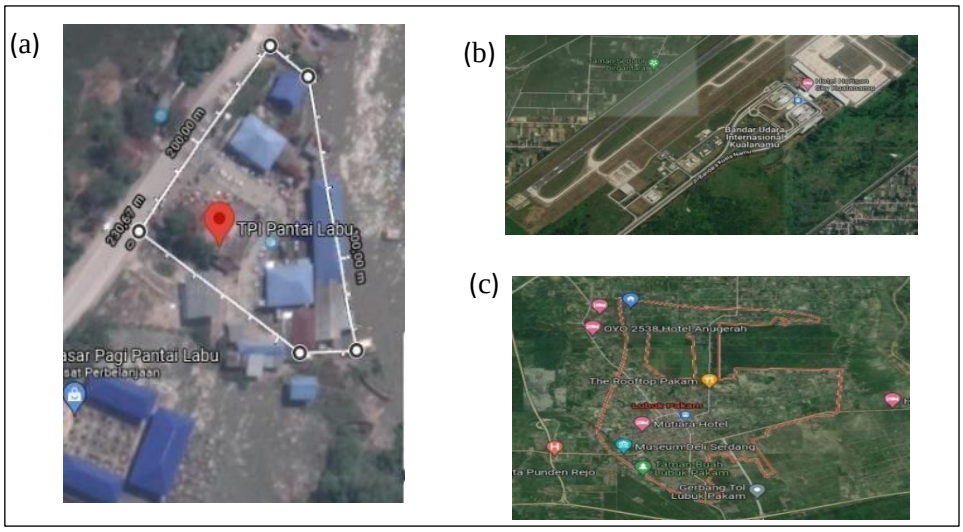

Figure 3 (a) Site project ; **(b)** Kualanamu International Airport ; (**c**) Lubuk Pakam District

3.2 Building Mass Concept

Processing of mass compositions is adjusted to the chosen Concept, namely Ecological architecture, which adapts to the formation of the estuary so that flow can be adequately achieved. The Concept of mass-produced is very different from the existing conditions because the Concept of mass results from applying themes and other architectural principles. The mass formed is the result of a change from the existing one. The addition of a culinary center opposite the same mass shape as the fish auction place makes this mass Concept only show a change in position.

The formed mass follows the changes, namely the estuary flow so that the group looks more flowing and integrated with the site [10]. This mass that is different from the existing one results from a previously planned concept. Changes in abundance and rearrangement of current groups are expected to answer the problems at this Fish Auction Place. The composition of the pack, which is divided into two, namely TPI and the culinary center, makes the mass that is formed appropriate and in line so that it does not cause a crowd that is too crowded. The distribution of mass buildings can be seen in figure 4.

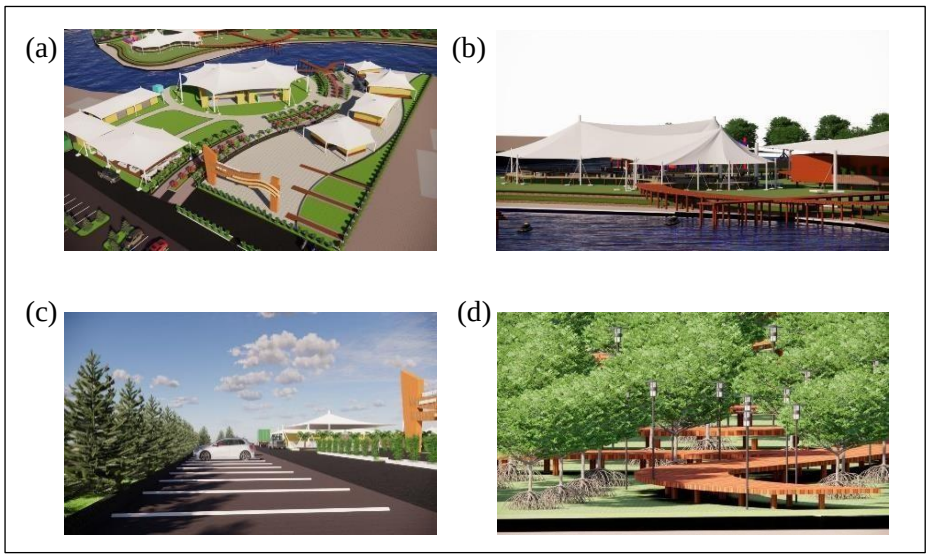

Figure 4 (a) Site of fish auction area ; **(b)** Site of cullinary center ; (c) Parking area ; (**d**) Mangrove tourism

3.3. Outdoor Concept

The design concept of the Outdoor Space is adapted to the architectural theme taken from ecological architecture, the determination of circulation in the parking lot. The decision to park at TPI is expected to be able to answer complex parking needs. Because the site is near an estuary, humidity has an important effect on thermal conductivity. The more humid the air, the more difficult it is for sweat to evaporate so that the release of body heat is hampered [11] can be seen in figure 5.

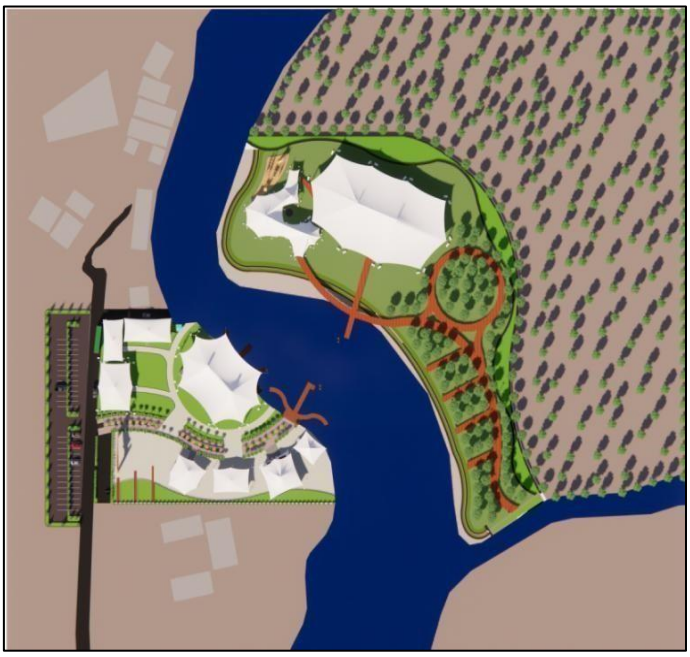

Figure 5 Outdoor Concept

3.4 Indoor Concept

The concept of interior design is integrated into the architectural theme of environmental architecture, which affects many gaps in architectural design. Lighting comes from sunlight which is always available in nature and skylights. The sun's intensity is stable, while the power of the skylight is affected by the time [12]. The materials used are also environmentally friendly, giving a beautiful impression on the design building. The interior of the building that is adjusted to the theme. Elements in the building also follow the harmony outside the building. Without a ceiling in the interior, it will flow more air into the building functionally.

The inner space is a container used by humans to do activities. Formed from the barrier in the room, movement/circulation space inside the area is formed through the filling element; Achieving good space quality includes separators, fillers, and padding, taking into account size, shape, environmental quality, and space materials. The indoor space regulations aim to improve function and enrich the aesthetics, which will later affect psychology/human psychology/users. The formed areas can later be included in human character as fulfillment needs for daily activities he did. The simplest example that can be found that the effect of color on the dining room wall. Bright colors are reliable and cheerful and can awaken most people's appetite until, like, dark color / dead color, which reduces appetite [13]. An example of using color in the dining area can be seen in figure 6.

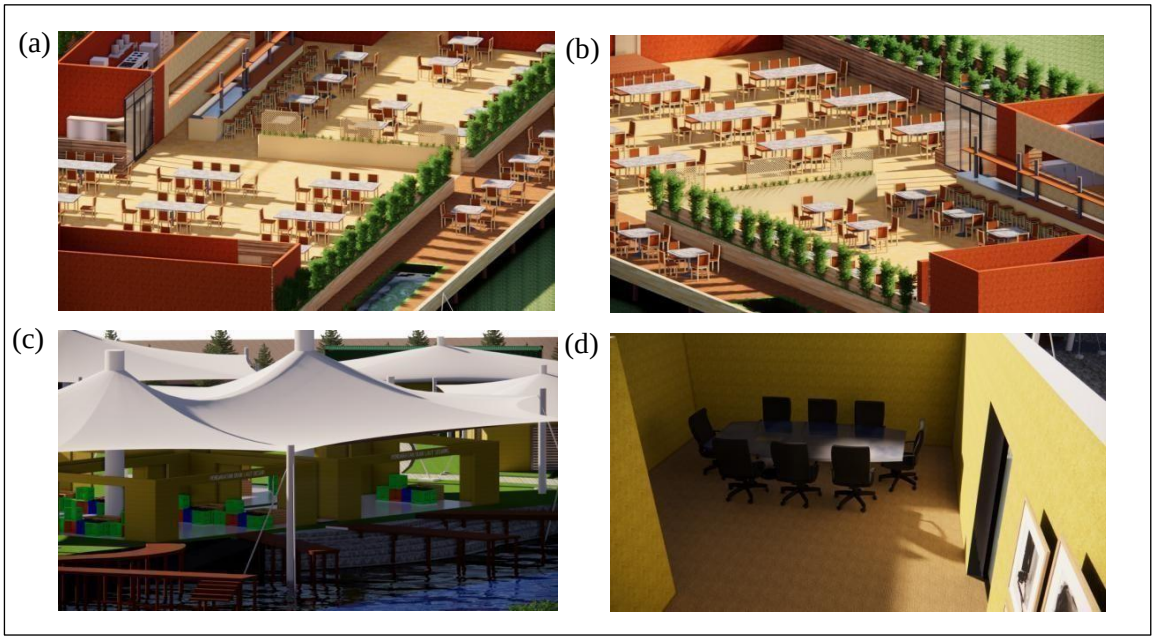

Figure 6 (a) Interior of dining area ; **(b)** Indoor space; (c) Fish aution area ; (**d**) Office

3.5 The Application of Ecology Architecture

The ecological architecture reflects concern for the natural environment and limited resources. Ecological architecture minimizes the destruction of the natural environment by using fewer materials derived from the natural environment to produce natural wealth. The design with ecological architecture considers the geographical conditions of the surrounding environment, climatic aspects, the durability of the life of building materials, and the chain of building materials used. The main principle in ecological architecture is to create harmony between humans and the natural environment around them [14].

In this case, the architectural ecology used as a benchmark for regional development is one of the design principles that incorporate environmental aspects as one of the primary considerations in its design. On the other hand, architectural ecology aims to solve architecture-related problems to ensure the continuity of a synergistic relationship between humans, areas, buildings (architecture), and the environment globally [15].

4. Conclusion

Pantai Labu Fish Auction Place (TPI) has excellent potential to be developed further and will become one of the community search centers. The design of the Pantai Labu TPI has a goal to be one of the desires in developing the TPI. The condition of the TPI facilities, whichare already very bad, should be repaired.

The application of eco-architecture in the design of Pantai Labu TPI can be distinguished from the building models used in other non-communal buildings, by focusing on building structures for heat storage. The application of Ecological Architecture to the design of TPI and its supporting functions can increase the close relationship between humans and the environment and create absolute comfort. Ecological Architecture, which has a more complex nature, takes advantage of the environment compared to Architecture in general.

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6. Conflict of Interest

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Author's name (typed)	Author's signature	Date
Annisa Syahrani		November 2023

Reference

[1] BPS. Perikanan. 2018.
[2] itssin. ITS. 2019 [cited 2023 Jul 26]. Deklarasi Djuanda dalam Sejarah Nusantara. Available from: https://www.its.ac.id/news/2019/12/15/deklarasi-djuanda-dalam-sejarah-nusantara/
[3] DKKPSU. "Potensi Kelautan dan Perikanan" [Internet]. 2018 [cited 2023 Jan 23]. Available from: http://dkp.sumutprov.go.id/statis-4/potensi.html.
[4] T. Bayur. T. Bayur, "Administrasi Masyarakat Desa (KUD) Minagates di Tempat," Jurnal Pendidikan Tambusai. 2019;3(3).
[5] M. H. Musoffan. "Teknis Penelitian dan Pengembangan Tempat Pendaratan Ikan (TPI) Brant Sebagai Pasar Ikan Wisata Bahari di Pamekasan", Jurnal Sosial Ekonomi Kelautan dan Perikanan. Jurnal Sosial Ekonomi Navigasi dan Perikanan [Internet]. 2020 [cited 2023 Jan 23];1. Available from: http://ejournal-balitbang.kkp.go.id/index.php/sosek/article/view/7825
[6] B. S. Heinz Frick. Dasar – Dasar Arsitektur Ekologis. Kanisius; 2007.
[7] S. C. Sym Van Der Ryn. Ecological Design. London: Island Press; 2007.
[8] S. Rukin. Metodologi Penelitian Kualitatif. Indonesia: Yayasan Ahmar Cendikia Indonesia; 2019.
[9] R. H. W. Naibaho. "Peran Nelayan dalam Perekonomian Kabupaten Pantai Labu, Delhi Serdang, Sumatera Utara." Repository UMSU [Internet]. 2017 [cited 2023 Jan 23]; Available from: http://repository.umsu.ac.id/handle/123456789/12556, 2017.
[10] Wibowo ARAWP. "Penerapan ekoarsitektur dalam perancangan wisata edukasi di Taman Hutan Raya Karanagarar Gunung Bromo,." 2020 [cited 2023 Jan 23];3. Available from: https://jurnal.ft.uns.ac.id/index.php/senthong/article/view/1214, 2020
[11] N. L. Latifah. Fisika Bangunan 1. Indonesia; 2015.
[12] N. L. Latifah. Fisika Bangunan 2. Indonesia; 2015.
[13] Rieka HA dan K. "Ruang Dalam Arsitektur Berwawasan Perilaku," . Media Matrasain [Internet]. 2012 [cited 2023 Jan 23];9:1. Available from: https://doi.org/10.35792/matrasain.v9i1.671,
[14] Aris SM, S. Yuliani. "Menggunakan konsep arsitektur ekologi dalam desain baru pasar ikan di kota Tegal,." 2018 [cited 2023 Jan 23];1:6–8. Available from: https://doi.org/10.20961/region.v13i1.17474, p. 6, 2018.
[15] R. A. Suprapto. "Pengembangan Taman dan Ekosistem Pantai Siung," 2009;