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Local Wisdom, Green Open Space, and Fishermen Facilities in The Fishermen Village of Pantai Bahari

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Abstract. Pantai Bahari is one of the villages in Bangkala district, Jeneponto regency, South Sulawesi, Indonesia. Bangkala is a regions of Jeneponto regency, while Jeneponto is one of the regencies in South Sulawesi province that has the potential to develop seaweed because it has a coastline of more than 95 km with an area of 749.79 km^2. One type of seaweed cultivated in Jeneponto is *Eucheuma Cottonii*. This type of seaweed has important economic value because it is material for crafts. Bangkala has an area of 121.82 km^2, with a population of 46,932 people. The population density is 385/km^2. The purpose of this study was to find out and analyze the fishermen settlement's facilities in-depth along with the supporting infrastructures in Pantai Bahari village. The scope of the study is focused on settlement facilities and supporting facilities available in Pantai Bahari of Bangkala district, Jeneponto regency. Empathy is a process of understanding other people's feelings and feeling what others feel. The research method operative in this research was qualitative descriptive research. This qualitative research was done through a case study. The approach used was descriptive analytic approach. Direct observation was done to collect research data, and the results were then connected with the relevant theoretical studies. Based on the survey results conducted in Bangkala district of Jeneponto regency, the facilities are inadequately inadequate. This is due to the fact that SNI requirements and criteria have not been satisfied in building a good and adequate community facility.

Keyword: local wisdom, green open space facilities, fisherman facilities, pantai bahari

1. Introduction

The diversity of traditional architectures spread across the archipelago has become an abundant source of knowledge. Traditional architecture in each region symbolizes the cultural distinctiveness of the local community [2]. As a form of culture, traditional architecture is produced from a rule or agreement that is still upheld and maintained from generation to generation [3]. These rules will remain existent to as long as they are considered relevant to the needs of local community.

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Facilities are everything that can support a work or business in order to achieve a goal. In a settlement area, it is required to have a facility to help people who live in that area to meet their daily needs. However, some regions sometimes have minimal facilities. This is what is faced by people who live far from downton where complete facilities are available. They need proper facility so that all of their daily needs can be met; no need to go all the way to the downtown. One of these remote areas is a community in a coastal area far from the city center. To fulfill the basic needs, they need a facility which can serve the people living in coastal areas as stipulated by Indonesian National Standard (SNI) concerning proper facilities. However, in reality some of these areas do not apply SNI as their basis in making a facility unit. Even though they should make a unit of facilities, they should use SNI. This is done to ensure that the available facilities can be truly adequate for the local community.

2. Literature Review

Traditional architecture is one form of the richness of Indonesian culture [1]. The diversity of traditional architecture spread across the archipelago has become an abundant source of knowledge. Traditional architecture in each region symbolizes the cultural distinctiveness of the local community [2]. As a form of culture, traditional architecture is produced from a rule or agreement that is still held and maintained from generation to generation [3]. These rules will remain existent to as long as they are considered relevant to the needs of the local community. Likewise, with the area in the coastal Pantai Bahari in Bangkala district of Jeneponto regency. Although this area is a coastal area because of its settlements lined up along the coastline, the characteristic of its architecture is also not much different from the concept of traditional Bugis architecture. The concept of Bugis-Makassar traditional society architecture stems from an ontological view of life, that is how to understand the universe "universally". The traditional Bugis Makassar's life philosophy called "*Sulapa Appa*" shows an effort to "perfect yourself". This philosophy states that all aspects of human life are perfect if they appear in the form of "Quadrangle". Philosophy originating from the "myth" of the origin of human events is believed to consist of four elements, namely: land, water, fire, and wind. In addition, the philosophical values in the cosmological view of Bugis ethnic group [4] consider that the macro-cosmos (universe) is composed of three levels, namely: *Botting Langi* '(upper world), *Ale kawa* (middle world), *Uri liyu'* (the underworld). The center of the three parts of the universe is *Botting Langi* (the highest sky) where the Gods of *Seuwae* (God Almighty) resides. This view is manifested in house which is seen as a microcosm. Therefore, Bugis house is divided into three levels, namely:

1. *Rakkeang* (rakkiang, attic)
2. *Ale Bola* (main area)
3. *Awa Bola* (space under the house)

The direction of house always follows the four directions, namely east, west, south, and north. Customary rules still seem to be widely followed by Bugis people everywhere. First of all, a particular view is chosen when a Bugis person wanst to have new house. For a *Parita-bola* or *urangi-bolaarah ana*, the house direction should be determined. Afterward, using *urangi-bola*, the center of the house is determined. The house is mostly ideal if it is built near family members, either husband's family or wife's family or near families. The second consideration is to choose flat land. If flat land is not available, then high land is preferred, which has to be either in the west or in the south. Regarding the direction of the house, one thing that is rarely seen in each house is tamping (additional side space). The location of a *tamping idak* room is commonly determined based on the general norm, that is either in the left or right. However, it is rather associated with the direction of the house. If the house faces north, then the *tamping* is placed east and when facing wide, then it is placed on the west side. This may be related to the head-laying of sleep. It is considered good if the head is laid westernly. The view regarding this direction influences the arrangement and location of the furniture, including the location of the bed and kitchen.

The impact of environmental damage that is felt due to human activities or natural disasters can be reduced by the development of Green Open Space (henceforth GOS) that meets the established criteria. Some vegetations that grow in the border area of the Bahep Jeneponto beach has been damaged, thus preventing proper growth. The damage experienced by green plants is caused by the absence of intensive and optimal management efforts. As a result, the function of the green space on Pantai Bahari Jeneponto is not ideally available. Reforestation that can function as breakers and the development of green spaces are the main steps in preventing the effects of coastal abrasion. Planting greeneries lines along coastal borders is also a solution to coastal pollution problems due to industrial and household waste, providing protection, ecological and economic functions and increasing coastal attractiveness as a tourism advantage.

2.1 Fiserhmen's Facilities

The fish landing facility is an element of economic infrastructure built with the intention of supporting the achievement of fisheries development, especially small-scale fisheries. As a public service infrastructure (public utilities), fish landing facility functions can be grouped into several categories:

- Infrastructure to facilitate fishing vessel production activities, management and marketing of fishery products and logistics services.
- As a center for the development of fishing communities such as guidance and counseling on ways to carry out good production.
- As a center for the economy development of the local fisheries through the development of the fishing industry.

In general fish landing facilities are intended to anchor or tether traditional fishing boats smaller than 5 GT or for sailboats without motors [5]. The amount of catches is less than 20 tons/day and intended primarily for local marketing.

Fish is a food that is easily decayed. Especially in tropical regions like Indonesia which has relatively high temperature. However, the duration of fish storage can be extended by decreased temperature. Even frozen fish can be stored for several months, as long as needed, fish can be melted and processed further by consumers. The procedures of processing frozen fish generally consist of freezing, cold storage in warehouses, transporting in refrigerated trucks, storing in cold cabinets at food stores, and storing in refrigerator freezer at home. Freezing fish means preparing fish to be stored in low temperature. Like cooling, freezing is intended to preserve the natural properties of fish. Freezing uses lower temperatures, which are far below the freezing point of fish. Freezing converts almost all of the fish's water content into ice. However, when frozen fish are re-melted for use, the fish condition needs to be restored.

Drying is a way of preserving fish by reducing the water content in the fish as much as possible. The body of the fish contains 56-80% water. If the water content is reduced, the bacterial metabolism is disrupted and eventually dies. At water levels of 40%, bacteria cannot be active, and some even die, but the spores are still alive. These spores will grow and reactivate if water levels increase. Therefore, fish are almost always salted before drying.

The drying speed is determined by the following factors:

- The wind velocity: the faster air above the fish is, the faster the fish will dry out.
- Air temperature: the higher the temperature is, the faster the fish will dry out.
- Air humidity: the moister the air is, the slower the fish becomes dry.
- The size and thickness of the fish: the thicker the fish is, the slower it dries.
- The wider fish body is, the faster the fish will dry out.
- The direction of air flow to fish: the smaller the angle is, the faster the fish will dry out.
- The nature of fish: fatty fish are more difficult to dry

The drying method is divided into two groups, namely natural and artificial drying. In natural drying, fish are dried on the shelves which are placed slightly tilted (+15°) towards the wind, and placed in the sun where wind blows. The duration of drying is 8 hours/day for 3 days in areas with high sunlight intensity. Drying must be accompanied by a reversal 2-3 times every day. Measuring the level of dryness is done by pressing the fish using thumb. In dried fish, finger pressure will not cause scars. Another way is to fold the fish's body. Dry fish will not bend if the body is folded.

Breakwater is a structure built to break waves by absorbing some of the wave energy. It is used to control abrasion which erodes the coastline and to calm waves in the port so that ships can dock more easily and quickly.

Breakwater must be designed so that ocean currents do not cause siltation because the sand brought in the current settles in the port pond. If this happens, the port needs to be dredged regularly.

There are several ways to protect the coast, including the following:

- Strengthening/protecting the beach to withstand waves,
- Changing the sediment transport rate along the coast,
- Reducing the energy of waves that reach the beach,
- Reclamation by increasing sediment supply to the coast or by other means.

Marine resources with a variety of ecosystems in the form of diversity of flora, fauna and natural phenomena along with the natural pristine are the gift of God Almighty. The potential of maritime natural resources and their ecosystems can be developed and utilized to their utmost for people's welfare while still taking into account conservation and rehabilitation efforts. Natural resources that can be utilized as natural conservation and natural attractions comprise of marine parks, beaches, flora including forests, fauna, and various forms of special ecosystems.

The definition of natural tourism includes objects and activities related to recreation and tourism that utilize the potential of natural resources and ecosystems, both in the original (natural) form and in combination with man-made products. Humans have begun to be saturated with urban life which is busy with various industrial activities and the noise of the city. As a result, recreational spots in the open nature that remain natural and provide comfort are increasingly visited by many people (tourists).

Seaweed is a large group of marine plants in the sea. This can be seen with bare eyes without a magnifying device, which commonly known as macroalgae. Naturally, seaweed is benthic or grows stuck or sticks to a substrate in ocean waters. The types of seaweed that grow on the sea are estimated to be thousands of species. Seaweed production in Indonesia comes from the results of cultivation in the sea and ponds as well as the results of extraction from the nature. The amount of seaweed production originating from nature decreases and is replaced by the type of seaweed cultivated in the sea consisting of *Kappaphycus alvarezii* (formerly known as *Eucheuma cottonii*), *Kappaphycus striatum* and *Eucheuma denticulatum*. *Kappaphycus alvarezii* and *Kappaphycus striatum* in the trading world are known as *Kotoni*, while *Eucheuma denticulatum* has the trade name *Spinosum*.

Based on global seaweed production reported by FAO in 2010, Indonesia is the largest producer of *Kotoni* (63.37% of total world production) and ranks second for *Gracilaria* (30.02% of total world production). Nationally, seaweed production in Indonesia is also dominated by *Kotoni* and *Gracilaria*. Many seaweed cultivation activities in the sea are carried out by coastal communities in Indonesia, which are used as main and part-time jobs. Hereunder are some of the advantages in seaweed farming.

- No need for high capital,
- Simple cultivation technology, making it easily applicable to small communities,

- Efficiency in time utilization,
- Short cultivation cycle, which allows farmers to get harvests within 45 days,
- Simple seaweed cultivation, which can be done by anyone, including housewives

3. Methodology

The research method was qualitative descriptive in nature, which applied case study. The approach operative was also descriptive analytic approach. The data collection was done by direct observations, the result of which was then connected with the theoretical studies backgrounding the study.

4. Result and Discussion

Pantai Bahari is one of the villages in Bangkala district, Jeneponto Regency, South Sulawesi, Indonesia. Bangkala is a region of Jeneponto Regency, while Jeneponto is one of the regencies in South Sulawesi Province that has the potential to develop seaweed because it has a coastline of more than 95 km with an area of 749.79 km^2. One type of seaweed that is cultivated in Jeneponto Regency is Eucheuma Cottonii. This type has important economic value because it is a producer of copy. Bangkala has an area of 121.82 km^2, with a population of 46,932 people. The population density is 385/km^2 (Figure 1).

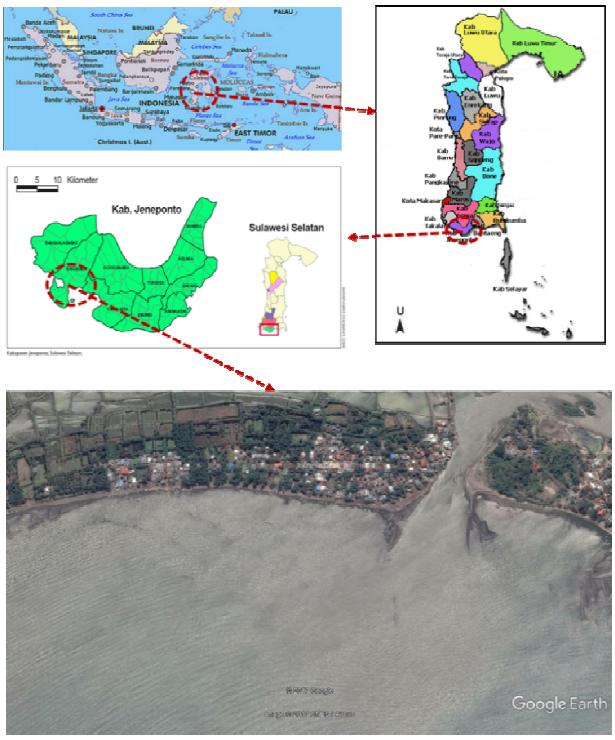

Figure 1. The Location of Pantai Bahari, Bangkala District, Jeneponto Regency. South Sulawesi Province
(Source: http//www.GoogleEarth.Com and author, 2017)

Green open space in the coastal residential area of Pantai Bahari, Jeneponto, has not been well organized. There are only a number of bales scattered along the residential road which functions as a community gathering place (Figure 2).

Figure 2. One of the Bales in Pantai Bahari village

Other open spaces are used by the community as a place for gathering and drying seaweed. The areas for processing seaweed have not been well organized (Figure 3).

Figure 3. Transformed Green Open Space

The imbalance in the development of built space and public open space (especially in the form of green open space) is certainly undesirable, both in terms of environment and in terms of tourism. In terms of the environment, the fewer green open spaces mean that less water is absorbed by the soil. The atmosphere gets hot (because there are no shade trees to absorb carbon dioxide). As such, little oxygen is produced. All of these issues culminate in reduced comfort in tourist attractions. Efforts should be made to balance the development of built space, namely by creating public open space, especially in the form of green open space (Figure 4-5).

Figure 4. One of the Green Open Spaces in Pantai Bahari

Figure 5. The Utilization of Green Open Space along the Coastline as Playground

The land around the tourist area of Pantai Bahari is still dominated by open land in the form of moor, with flat topography - sloping land and sandy soil. Thus, there are no constraints on construction work. Some residents use the space as a spot to dry the seaweed and the fishing net, but most of the moor is not specifically utilized by the local community (abandoned and overgrown with reeds).

The unused land around Pantai Bahari tourist area is a potential. Before the land is used as a constructed space, there should be space allocation for public open space, especially open space in the form of green open space. Several trees have grown at these open spaces. This is a separate capital for the formation of green open spaces. Existing trees do not need to be cut down; these only need to be arranged and tidied up. Thus, the development of green open space puts forward the use of potential and local resources. The site that will be developed in the community will certainly have an impact. Possible effects can be good or bad. However, in this case, after a more in-depth study of the environment around the research site, there are actually many positive impacts that will be felt especially by the community. There are at least four impacts that will be felt by the community, including the followings:

1. Motivating people to participate in preserving the environment by arranging green spaces around their homes
2. Offering an alternative means of entertainment for tourists at Pantai Bahari,
3. Increasing the income of Jenepontoepok tourism objects with the means of attraction of Pantai Bahari tourists, and

4. Offering entertainment for the surrounding community because of the existence of sports fields and ideal green open spaces.

The potential site that will be arranged will certainly affect the surrounding communities. If a negative impact arises, then of course surrounding community will turn down the site arrangement plan. Simply put, it indirectly implies the cancellation of the site formation. However, it may be different from another perspective (Figure 6). Viewed from a positive point of view, the site is projected to have a positive impact on the environment, which includes the following five aspects:

1. Protecting the beach from the dangers of abrasion
2. Reducing the effect of heat from the sun during the day
3. Greening the beach
4. Maintaining the sustainability of coastal plants, and
5. Reducing the speed of sea water to land

Figure 6. Fields along the coastline of at Fisherment Settlement in Pantai Bahari Fisherman Settlement, Jeneponto

Fishing boats at Pantai Bahari, Jeneponto, are moored along the coastal part of the north coast, which serves as a fishing area. The southern region is commonly used by seaweed fishermen. The south coast has only a small number of fish. According to the local community, it is caused by the construction of a Steam Power Plant across the coast (Figure 7-8).

Figure 7. The Port at Pantai Bahari, Jeneponto

Figure 8. Boat Docks at at Fisherment Settlement in Pantai Bahari Fisherman Settlement, Jeneponto

The fish caught by Pantai Bahari fishermen are then weighed and then taken directly to the market for sale. There is no fish auction or fish landing base that provides public services and services to facilitate boat activities or fishing vessels and fisheries (Figure 9-10).

Figure 9. Fish Collection Site at Fisherment Settlement in Pantai Bahari Fisherman Settlement, Jeneponto

Figure 10. Fish Drying Place at Fisherment Settlement in Pantai Bahari Fisherman Settlement, Jeneponto

Some fishermen hang the fish they caught on the dock and under their house. There is no special area for fish drying which makes it easier for fishermen to manage and maximize their catch.

The fish caught in Pantai Bahari are stored in a small box which is brought directly to the market after being weighed. The fish that are not weighed are dried under the fisherman's house.

4.1 Seaweed Collection Site

There are only two types of seaweed found at Pantai Bahari, Jeneponto:

- *Kappaphycus alvarezii* (Red Algae), formerly called *Eucheuma cottonii*. This is also known for its local name, *Katoni*, *Tambalang*, *Kangkung Katoni* seaweed
- *Eucheuma denticulatum,* previously mentioned as *Eucheuma spinosum*. It is known for the local names, *Spinosum*, *Safari Turbinaria conoides*, (Algae Chocolate)

Some people hang their seaweed on the yard and along the southern coastline (Figure 11).

Figure 11. Seaweed Collection Site at Fisherment Settlement in Pantai Bahari Fisherman Settlement, Jeneponto

Problems

- Organic and inorganic wastes and dried tree carcasses scattered along the coast.
- Inadequate drainage networks in settlement areas of Pantai Bahari, Jeneponto, giving rise to several points of area filled with puddles of household wastewater (Figure 12).

Figure 12. Seaweed Collection Sites at Fisherment Settlement in Pantai Bahari Fisherman Settlement, Jeneponto

Output

Based on the problems abovementioned, there are several insights grounded within the analysis results, formulated as follows:

- The need for good and creative use of green open space is unquestionable. This will allow more vacant land to be used by the community as a public space to gather and become an attractive tour for visitors to Pantai Bahari, Jeneponto
- There is also urgency to build a fish landing facility that facilitates fishermen to facilitate boat activities or fishing vessels and fisheries and as a center for the development of fishing communities. The facilities will serve as guidance and counseling on ways to produce good production
- There is an immediate need to build a breakwater in the form of a cylindrical arrangement of concrete that can be an exotic structure. Visitors can stand on the breakwater while looking off towards the sea.
- There needs to be a seaweed cultivation area which potentially makes it easier for fishermen to manage their catches (Figure 13).

Figure 13. Breakwater at at Fisherment Settlement in Pantai Bahari Fisherman Settlement, Jeneponto

5. Conclusion

Traditional building architecture in the coastal areas of Pantai Bahari village of Jeneponto regency adheres to the Bugis-Makassar ethnic architecture, namely the culture of South Sulawesi. This architectural characteristic is laden with philosophical, cultural, and social values. The traditional house of the Bugis Makassar community is famous for its stage form. It has become a distinctive feature in Bugis Makassar culture. The same goes for traditional houses in the fishermen's village of Pantai Bahari. In general, the houses in the village have the characteristics of the Makassar Bugis house, which alludes to the philosophy of the underworld, the middle world, and the world above.

Acknowledgment

For learning purposes, the writer would like to propose several suggestions. There seems to be the need to add more accurate books to enable students learn the traditional architecture of

South Sulawesi more deeply, especially coastal settlements in Jeneponto regency. In addition, to optimize students' understanding of traditional South Sulawesi architecture, more books will put them at ease to understand the architectural features. What is also important is having mentors who can monitor students in learning.

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