



CHARACTERISTICS OF SPACE AND ARCHITECTURAL CONSTRUCTION OF COASTAL HOUSES GALA ISLAND, WEST MUNA REGENCY: AN OVERVIEW OF MUNA, BUGIS, AND BAJO ETHNIC ARCHITECTURE ACCULTURATION AND ADAPTATION

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ABSTRACT

Coastal house architecture is a topic that is often researched in the field of architecture or other scientific fields. Although researchers often raise it, this topic is still relevant to always fulfill the science narrative because Indonesia is one of the countries with the largest ocean area in the world. It is also undeniable that coastal communities have experienced much cultural syncretism with other Nusantara communities since hundreds of years ago as a geographical consequence. The occurrence of cultural syncretism not only has an impact sociologically but also has an architectural impact. This study aims to find the characteristics of coastal houses on Gala island in terms of acculturation and adaptation of the Muna, Bugis, Bajo ethnic groups. Other objective is to find the architectural form and essence of coastal houses that reflect the life of the people in the Gala island area. This research was conducted in the Gala Island area, West Muna Regency, Southeast Sulawesi Province, Indonesia, using a phenomenological method with a qualitative approach, with a post-positivistic paradigm. Meanwhile, the aspects analyzed are space, house construction, occupant activities, and building materials. This study found that the characteristics of the spatial pattern and construction of the Gala island coastal houses built on land are acculturation between the Bugis and Muna ethnic architecture. Moreover, the characteristics of the spatial pattern and construction of the Gala island coastal houses built on the water are acculturation between the ethnic architecture of Muna and Bajo. In addition, the essence of the embodiment of architecture is an adaptation to activities as fishermen, local construction knowledge, and utilization of materials from local natural resources, and geographical position. Lastly, there is flexibility in changing spatial arrangements both in houses built on land and houses built on the land, built on the water due to traditional cultural activities.

KEYWORDS: Characteristic, Architecture, House, Coastal, Gala Island, Acculturation, Adaptation

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INTRODUCTION

Gala Island is an island with 147 head of a family with a total of 616 inhabitants. This island has been a village since 1975 under the name Gala village. Currently, Gala village consists of 2 hamlets and is divided into 4 Neighbourhoods. The houses are grouped into settlements in Gala island village located on the eastern part of Gala island. The hills of Gala Island protect the position of this settlement. Gala Island is located in the Tiworo Strait, at coordinates 04°52'200" South

Latitude and 122°16'308" East Longitude and has an area of 62 hectares with a coastline of 3 to 4 km, included in the Maginti District, West Muna Regency. (Ramadan, 2016).

The origin of the "Gala" Island term is known from the story of the traditional local leader, Abdul Hafid. Once in the past, passing by a Bajo people's boat that suffered a broken mast on the boat he was traveling in, these Bajo people came from the island of Selayar, South Sulawesi. They stopped at the island to take bamboo instead of a sail pole. This island turned out to be overgrown with bamboo trees, so the Bajo people named this island Bamboo Island or Gala. Although this island also grows many coconut trees, mango trees, banana trees, and cashew trees.

Furthermore, it was said by the traditional leader that the first inhabitants of Gala Island were three families, i.e., 1). The family comes from Aru Meru (Kajuara area, Bone Regency, South Sulawesi) and is dominated by the Bugis ethnic group named Petta Tangnga. The group controls the hill area, which is the western part of Gala Island. 2). A family from Aru Palakka from the Bugis ethnic group controls the Central part of Gala Island, and 3). Aru Woro comes from the Tiworo archipelago, which controls the eastern part of Gala Island. According to the traditional leader, the family from Aru Palakka does not have children, so the descendants of the Aru Meru and Aru Woro families have developed to occupy Gala Island. The descendants of these two families later married into various tribes such as Muna and Bajo.

The story and its development illustrate that the inhabitants of Gala Island consist of various ethnicities, i.e., Tiworo, Bugis, Muna, and Bajo. The integration of these several ethnicities will result in cultural syncretism, affecting society's sociological conditions and architectural form. Humans cannot be separated from the culture surrounding them, one of which is when designing a house as an embodiment of that culture (Alimuddin, 2016). The architectural acculturation of these various ethnicities, namely the ethnic architecture of Muna, Bugis, and Bajo, should be suspected of giving birth to architectural characteristics characteristic of houses on the coast of Gala Island. This characteristic is a form of adaptation that becomes local wisdom. Local wisdom is more supported by consideration of positive benefits and goodness that is tested from time to time-related to human adaptation in managing the necessities of life in various dimensions which are colored by a holistic balance between humans and the creator, human relations with humans, human relations with the universe (Baka et al., 2018-20).

LITERATURE REVIEW

Characteristics

The term "characteristic" according to Soerjono Soekanto (1993:74), is a "sign or attribute of a person, group or culture that becomes his/her identity. At the same time, the character is a unique feature of the basic structure of a person's personality. So it can be said that all elements of culture are owned, including houses and settlements, and what is attached to individuals and communities as unique characteristics are characteristics.

Lorens Bagus (1996) Reveals That Character Means To Make Sharp, to Make Deep, or to Have Understanding:

- The name of the total number of personal characteristics includes behaviors, habits, likes, dislikes, abilities, tendencies, potential, values, and thought patterns.
- A relatively established personality framework that allows such traits to manifest themselves.

- Character (nature) can predict individual behavior in various circumstances and can also control it. Individuals form personality traits that are useful for society. A character finds its expression in the individual's attitude to himself, to others, to the tasks entrusted to him, to other things.

Character is revealed through social activities and work activities through a pattern of human actions. Character (character) relates to all individual behavior, is socio-psychological, and is influenced by the world's view that a person has, his knowledge and experience, accepted moral principles, by the guidance of others and active interaction with them. When viewed from the formation of house characteristics, the above understanding can illustrate that the character of social activities and work activities that are influenced by views, knowledge, and experience, as well as accepted moral principles and active interactions between humans, will manifest the characteristics of houses in an area.

Home

Every nation or tribe/ethnic always has a traditional residence, "home" is a small world as a replica of the big world that functions as a shelter, an "intermediary" bridge connecting humans with nature, and is a cultural expression of a particular custom and culture. The style is in line with what Rapoport (1969:47) stated: the house and the environment are a society's expression of culture, religion, family, social structure, and social relations between individuals. This expression revealed will characterize a residential environment as stated by Rossi (1984: 56): the settlement environment is a collection of various artifacts that occur due to the merger between the site, event, and sign. The type of building and other physical elements on the site are signs of certain events. The type shows a very complex continuity so that it can characterize a residential environment.

According to Waterson (1990), in his book "The Living House", the house is seen as having spiritual content and meaning; In indigenous beliefs in Southeast Asia, there is a concept of a vital force that encompasses and moves the universe. This power is known as "spirit", "soul-stuff", "essence", "vital force", "cosmic energy", in Indonesian it is known as "spirit". The people see houses of the archipelagic state as having their main strength (spirit), which is interdependent with the owners' main strength (spirit). Furthermore, according to Waterson, the ethnography of Southeast Asian society provides overwhelming evidence that the function of ritual cannot be separated from the identity of the house. It is a fact that regional architectural styles are more able to adapt to the local environment and use local materials to a large or small degree. Another important factor of architectural form is historical continuity. The role and power of culture concerning the environment are also emphasized by Altman (1984:156), which states that the house reflects variations in cultural values, world views, and mythology, beliefs, and structures of families and communities.

The description above provides a basic understanding that the role of "house" is extensive, and the expressions contained in it indicate that the house does not necessarily exist. The house is realized through the complexity of ideas from various elements of human life, society, and the environment. In other words, houses and settlements appear with the concept of living understood internally or implicitly by the community concerned.

According to Christina et al. (2014) in (Sharif, 2016), that architecture will last a long time depending on its natural resources and an inclusive culture that is dialogical with novelty and the taste of the times. Architecture as a cultural product is a masterpiece of the past, which 'dialogues' intensively with the community that owns it and the natural environment supporting it throughout history. Furthermore, Shima (2006) explains that the traditional house is a product of an evolutionary process based on humans' practical experience in the past in interacting with nature so that it can be seen as a reflection of the mindset and lifestyle of traditional communities in the past, which of course contains many lessons about local wisdom in interacting with their natural environment.

Muna Ethnic Architecture

The Muna ethnic architecture consists of several buildings, namely Kamali, Lambu Balano, Lambu Koghoerano, Lambu Kapitalao, Lambu Kino, Lambu Kaomu and Walaka (Andisiri and Faslih, 2019). In this literature review, only the Lambu Kapitalao architecture will be scrutinized.

The Architectural Form of Lambu Kapitalao

Lambu Kapitalao Wunais one of the artifacts that exist today. The physical condition of this Kapitalao shelter very concerns amid the enthusiasm of the Wuna people to preserve their architectural heritage. Lambu Kapitalao is located in the town of Raha, Muna Regency. The shape looks like a low-pit shelter, made of teak wood and rows of planks installed vertically and horizontally. The architectural form of Lambu Kapitalao is a prism-shaped spatial structure. Namely, a triangular prism on the top construction and a rectangular prism on the bottom construction. It also appears in details such as railings, windows, and doors (Andisiri & Faslih, 2021).

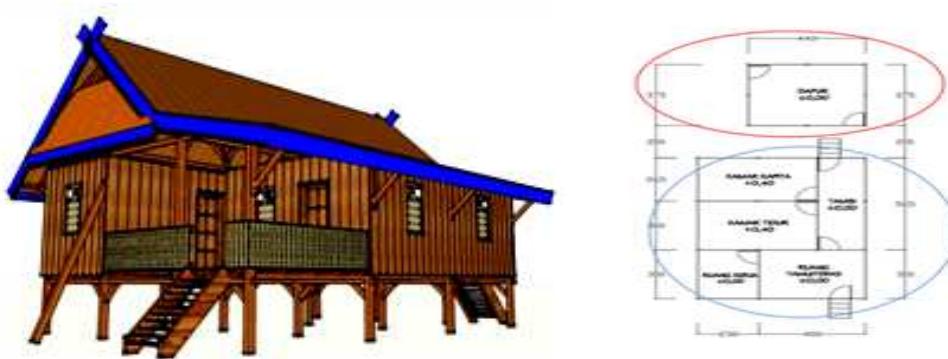


Figure 1: Form of Lambu Kapitalao (Andisiri & Faslih, 2019).

Figure 2: House Plan of Lambu Kapitalao (Andisiri & Faslih, 2021).

Horizontal Space

The space under the house is not functioned, while the rooms in Lambu Kapitalao's body are used for work, rest, and cultural rites. Generally, the auspices of the Wuna community separate the ghabu (fireplace/kitchen) from other rooms. The matter of the separation is an effort to mitigate fires (Andisiri & Faslih, 2019). Figure 2 shows the layout of the room.

Construction

The vertical anatomy shows the structure of the roof trusses connected by the details of the holes and pins. The shaded structure is constructed using the same 'shaking' construction system as the 'shaking' construction of Wolio architecture. No connections and nails are found either from wood (pegs) or metal (Andisiri & Faslih, 2019).

Figure 3 & 4 shows Based on the description of the shape and anatomy, the architectural characteristics of Wuna can be compiled, including; Shade with holes, pointed roof, made of wood, fingered lighting and lighting, fireplace room (ghabu) which is separated from other rooms, rocking construction (Andisiri and Faslih, 2019).

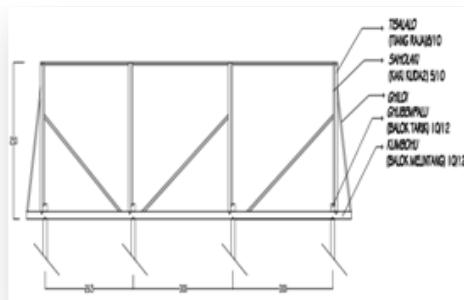


Figure 3: Upper Structure of Lambu Kapitalao (Andisiri & Faslih, 2019).

Figure 4: Lower Structure of Lambu Kapitalao(Andisiri& Faslih, 2019).

Building Materials

The materials used in Wuna's house are teak and biti wood on the pillars, beams, floor coverings, and house walls. In comparison, the roof covering material comes from thatch and thatch plants. Geographically, these plants thrive in the tropical climate area.

Bugis Architecture

The Bugis have social strata, i.e., the nobles (anakarung), the ordinary people (to maradeka or to sama), and slaves (ata). Based on the social level of the Bugis people, Bugis houses are classified into several types, namely: (a) Sao-raja, a house for a noble family that has a ridge or timpa laja in three or more layers, (b) Sao-piti, the shape is smaller than the Sao raja, and has a two-tiered ridge or laja ridge, and (c) Bola, is the home for the general public/ordinary people (to sama) (Hasan &Prabowo, 2002). The Bugis ethnic architecture taken in this literature review is the Bola Ugi Architecture in Kajuara, adjusting to the genealogy of the first family living on Gala Island.

Architectural Form of Bola UgiinKajuara

In simple terms, bola ugi is a term for a traditional house of the Bugis tribe that functions as a residence or shelter for ordinary people. In terms of the meaning of the word "bola" means house and "ugi" means Bugis so that overall it is interpreted as a Bugis house (Hamka, 2017).

Vertical Space Hierarchy

Hierarchy, The vertical space in Bugis houses consists of a section under the so-called underworld (subola), which has several functions, including as a place for livestock, firewood storage, farming equipment, warehouses, workplaces, and some use as a resting place. The body part of the house/universe, called the middle world (watangmpola), functions as a dwelling, and the upper part, called the upper world/sky (rakkeang), functions as a place to store crops, especially rice and other household goods (Hamka, 2017).

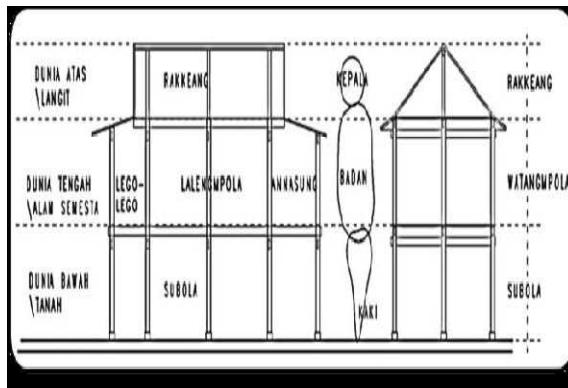


Figure 5: Vertical Hierarchy (Hamka, 2017).

Horizontal Space

Horizontal spaces in the body of the building, namely the front (lego-lego), the middle/inside (lalengmpola), and the back (annasung).

Figure 6 shows the horizontal space functions in the watangmpola section are divided into three; namely, the front (lego-lego) is a public social area to receive unofficial guests and a place to relax together. Inside this lalengmpola, there is a living room for official guests, a family room, and a bedroom. The back (annasung) or kitchen house functions as a service area for life support such as cooking, eating, and washing (teme-temeng). The value of spatial importance in the hierarchical system places the middle as the essential center compared to other spatial functions (Hamka 2017).

The layout of the space in the watangmpola section is generally focused on the location of the bedroom as the primary reference. The location of the two bedrooms is generally influenced by the direction of the house's orientation or by law; it must be on the west, it is considered to receive the sun from the east (sustenance), or the south is considered a form of rejection of reinforcements. The dapurengandteme-temeng are at the back of the annasung, located on a different side from the location of the bedroom. If the bedroom is on the left side, then the dapureng and teme-temeng are on the right side of the annasung section.

The subola section has more diverse functions, depending on the social background of the homeowner. In general, the layout of the space at the bottom (subola) is divided into three parts; namely, the front under the Lego-lego serves as an open space that can be used to rest, play, work, dry clothes, and others. The middle part under the lalengmpola serves as a warehouse for storing agricultural goods and others. While the back, especially under the bola annasung, is generally used as a place for livestock such as chicken coops or cow coops.

Figure 7 shows Archipelago values contained in the Bola Ugi space layout pattern have the value of human relations as a form of actualizing community social relations and the value of universality and divinity related to belief in determining the location of specific spaces (Hamka, 2017).

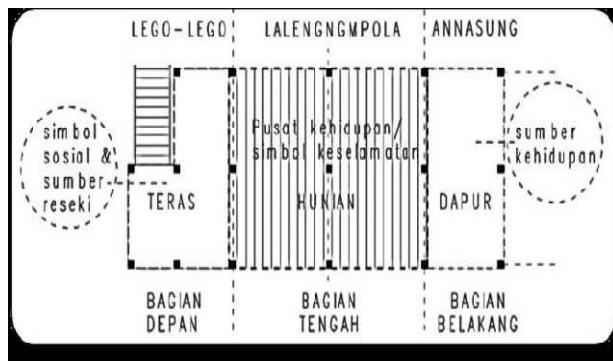


Figure 6: Horizontal Hierarchy (Hamka, 2017).

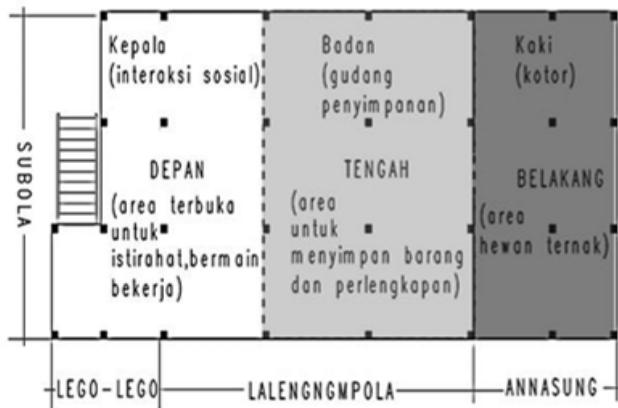


Figure 7: Space Function at Subola (Hamka, 2017)

Building Materials

Shima (2006:58) explains that building materials for traditional Bugis houses are obtained from the forests around the house construction site and accompanied by rituals before the tree is cut down. Usually, the poles are made of bitti wood, blocks, and boards of ipi wood, amara coppo, cenrana, durian, and jackfruit. Roofing materials from fibers, bamboo, nipah, or thatch. All of them are widely detected in the natural environment of South Sulawesi. The building materials used by the Bugis people to build old houses based on the information found were Cinagori wood, lading (Lombok), and oliqlupang. This type of wood is no longer found (Hartawan 2015).

Construction

The components of traditional Bugis building materials are assembled to form a knock-down construction. Bugis stilt houses have flexibility because they can be dismantled and reassembled or relocated to other places (Sharif, 2016). The structural system of Bugis houses from the ground up; the bottom is the pallangga/umpak where the pole stands (alliri). The lowest binding beam binds the pillars in the direction of the width of the building (pattoloq yawa). The beam that binds the poles for the length of the building (arateng) at the top, as a place for the floor support beams Pateq blocks, have the same role as pattoloq yawa but have smaller dimensions. The upper beam consists of pattoloq yaseq (same as pattoloq yawa, only its position is above) and bareq (similar witharatemeng, located at the end of the pole). The ridge beam supports are called sudduq, installed in the front and rear rows of poles (Hartawan 2015).

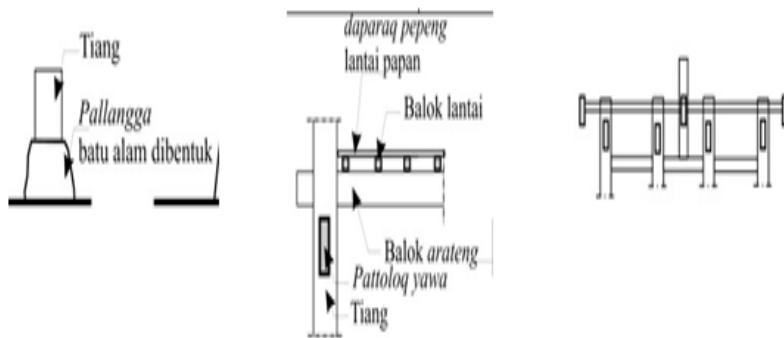


Figure 8: Construction of Umpak, Floor Beam and Upper Beam (Hartawan, 2017).

Bajo Ethnic Architecture

The Bajo people work as fishermen. In the past, the boat was the residence of the Bajo tribe. Over time, the Bajo people then chose to build houses above the sea with wooden columns tied and not permanent, making it easier to move to other areas (Siola, 2017).



Figure 9: Houseboat of Bajo's People (Saman, 2014).

Figure 10: “Rumah Panggung” of Bajo’s People (Rifai 2010).

Form

The hallmark of the early Bajo Tribe architecture is the symmetrical and orthogonal structural form on the plan (horizontal) and cut (vertical). The Bundaang-buliang and rumak-diaruma rooms are considered the leading spaces in the composition of the residential building as a whole (Gobang, 2017).

Space

The living space of the Bajo people, i.e., a) paselo (front porch), b) bundaang (front room or living room), c) tingnga (bedroom), d) buliang (back room), e) dapurang (kitchen), and f) tatambe (back porch that uses poles). As a dwelling above the water, apart from a dry area parallel to the road, it is also known as a diaruma, an area under the dwelling (Gobang, 2017).

Figure 11 shows the philosophy of sama di lao is still maintained in the form of housing; the ideal settlement, according to sama di lao, is facing the sea at the back and the circulation path in front of or beside the house so that residents of the house can interact and have activities in the sea and the space in front of it (Gobang 2017). Horizontally: the traditional house of the Bajo tribe has made additions or partitions of spaces to create privacy in the house. Such as the

separation between the living room, family room, bedroom, and kitchen. This change is carried out in line with the influence of interactions in the surrounding environment (Siola&Amru, 2017).

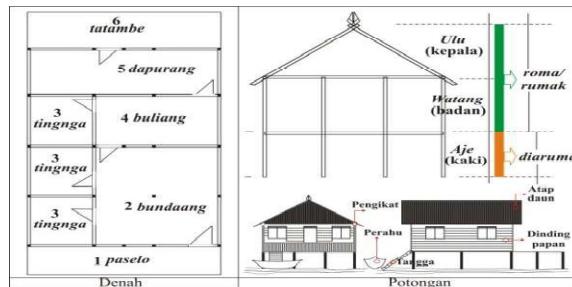


Figure 11: Bajo's People Residence (Gobang, 2017).

Structure

The structural system used in the house of the Bajo tribe has developed in several stages, starting with the stage of building a house with only one room, then developing into a house that has several rooms and functions. The pole, which is the main structure of the building, is driven directly into the sand as deep as ± 50 centimeters. This building has two pillars, namely roof trusses (usually ±4m in length) and floor studs (usually ±1.5m in length). All poles used are made of poso-poso wood, a type of mangrove wood resistant to seawater. Poso-poso wood is a local wood that is widely available in the area. The diameter of the wood used for poles is about 15-20 cm (Rifai 2010).



Figure 13. Pole Construction of Bajo House (Rifai, 2010)

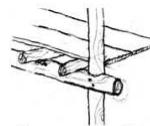


Figure 14. Floor Construction of Bajo House (Rifai, 2010)



Figure 15. Roof Construction of Bajo House (Rifai, 2010)



Figure 16. Roof Tie Construction of Bajo House (Rifai, 2010)

Figure 12: Pole Construction of Bajo House (Rifai, 2010)

Figure 13: Floor Construction of Bajo House (Rifai, 2010)

Figure 14: Roof Construction of Bajo House (Rifai, 2010)

Figure 15: Roof The Construction of Bajo House (Rifai, 2010)

Building Material

All poles used are made of poso-poso wood. The wall covering is made of woven coconut leaves or plank walls, and the floor is made of boards and mangrove logs. The roof of the house of the Bajo tribe uses nipa/rumbia leaves. Before the boards were used as floor coverings, the Bajo tribe used nibong wood chopped until it became flat. The Nibong tree is a type of betel nut that grows a lot (Rifai, 2010).

METHODOLOGY

The study performed a qualitative descriptive analysis method, starting with a literature review related to the topic of the study, field observations, and conducting direct interviews with key persons. The entire data collected was then compiled

and analyzed. This research method is based on the post-positivistic paradigm, namely the phenomenological method with a qualitative approach (Sugiyono, 2014). Data collection is conducted by reading the architecture of the house, appreciation of geography, and the life of coastal communities. From field observations and interviews, two houses were selected to represent the houses on Gala Island. This house represents a house built on land and a house built on water. The selected houses were analyzed for spatial patterns, activities, structural anatomy, and building materials used to see their characteristics due to the acculturation of the Muna, Bugis, and Bajo ethnicities and adaptation to the environment.

FINDINGS AND DISCUSSIONS

Study Object 1: House Build on Land

The object of the study is the La Kibo house. La Kibo was born in Muna (Kasimpa) in 1963, currently 58 years old. Since the 4th grade, he has lived on Gala Island. La Kibo works as a crab net fisherman, has two children. The first child is a man who is married and currently living on Balu Island, and a daughter (a widow with a child) who lives with La Kibo. La Kibo has a house on stilts made of wood. Four people inhabit the La Kibo's house; Lakibo, his wife (Born in Gala Island), daughter, and one grandson in second grade.

House Shape

Figure 16 & 17 shows La Kibo's stilt house consists of the main building and the jungke (kitchen) building. This house faces east and has grown three times. The initial size was 4.2 x 5.6 meters, then it became 6.3 x 10.2 meters, and in 2019 added a jungke room and dining room with a size of 5.6 x 6.3 meters on the right side.



Figure 16: La Kibo's House Perspective.

Figure 17: Front View of La Kibo's House.

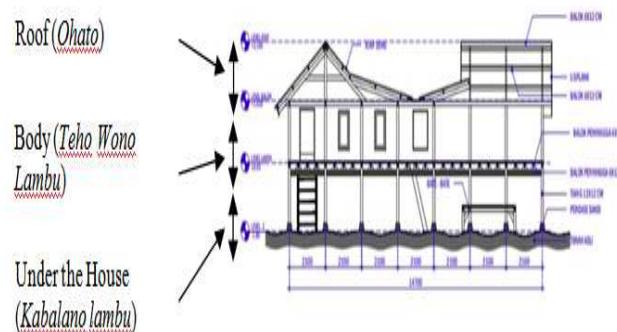


Figure 18: 2D View of La Kibo's House.

Vertical Space

The vertical anatomy of the La Kibo house can be described as follows; The house consists of the lowest part (kolong), the body of the house, and the roof. kolong has a height of about 1.6 meters from the ground, while the body of the house has a height of about 2.2 meters from the floor to the wall height, the ridge height from the floor is about 3.50 meters, and the overall height of the house is around 5 meters. The pillars of the house stand on a pedestal of cast stone and rock. Space under is functioned as an area of support and storage activities, while the body of the house is used as the main activity, the roof space is used as a storage area only for the jungke.

When compared with the vertical anatomy of the architecture of the Muna, Bugis, and Bajo ethnic houses, the vertical anatomy of the La Kibo house is more similar to the architecture of the Bugis house, this can be seen from the existence of the house under which is relatively high and is used for supporting activities (underworld "Sobula"), also the body of the house (the middle world of the "watangmpola") and the roof (the upper world of the "rakkeang"). The difference is that in the core building of the La Kibo house, the lower part of the roof is not used as storage

Home Body Horizontal Space

The horizontal spatial pattern in La Kibo's house consists of a porch on the front (east), a bedroom on the north side, a jungke consisting of a dining room, a place for holding bodies, a kitchen, and a washing area on the south side attached to the building. Main. The layout of the space can be seen in Figure 20:

Figure 19 shows when a comparison is made with the horizontal anatomy of the Muna, Bugis, and Bajo ethnic houses, the spatial arrangement of the La Kibo house resembles the arrangement of the Bugis ethnic house. This similarity can be seen in the front porch, which is in the Kajuara Bugis house called lego-lego, the bedroom position is on the south side, the jungke which in the Bugis house is called annasuang in a position attached to the main house or in the Kajuara Bugis ethnic called lalengmpola. On the jungke, there is a dining room, kitchen, and laundry room as in the annasuang section of a Bugis house. This horizontal anatomy shows a similar hierarchy to the Bugis ethnicity (lego-lego>lalengmpola>annasuang) even though the jungke's position at La Kibo's house is not behind lalengmpola, this is because the land owned to the west is limited so that the development of jungke is towards the north. At La Kibo's house, there is a special place prepared for the body's holding adjacent to the bathroom. The floor where the bodies are held is made of bamboo slats to have gaps that water and wind can flow through. La Kibo often uses this place to take a nap because the floor cavity can be flown by the wind, which makes it extraordinary. The layout of the space during formal or customary events will change. The boys' bedroom walls will be opened so that there is ample space due to merging the living room, family room, and children's bedroom.

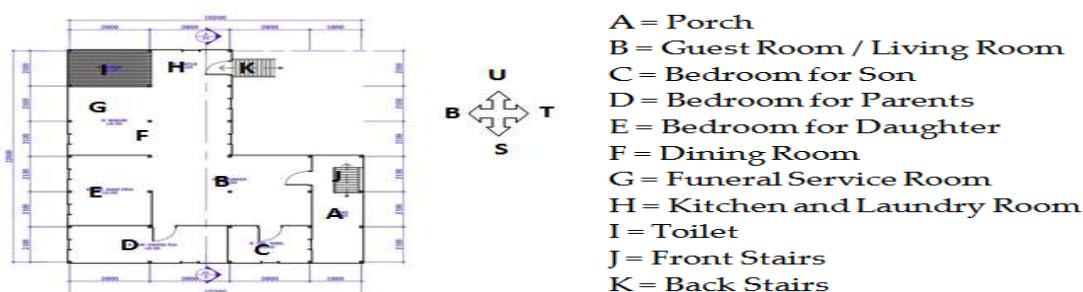


Figure 19: Plan View of La Kibo's House.



Figure 20: Zone of a La Kibo's House.



Figure 21: Typical Zone of Bugis Kajuara's House.

Horizontal Space Under the House

Under La Kibo's house, there is a Gode-gode or Para-para used by wives and children to chat with neighbors and take a break. All stilt houses on Gala Island have gode-gode or para-para under the house. The underside of the house is also used to repair nets and boats, store things, and as a place for children to play.

Compared with the architecture of the Muna, Bugis, and Bajo ethnic houses, the function of the basement under the La Kibo house has similarities to the Bugis Kajuara ethnic house. Under the house or the lower area of the Bugis ethnic house called "sobula" has the function of a place of interaction, a place of work, a place to store goods. The difference is that under La Kibo's house is not used as a place for livestock but rather a space for supporting activities related to La Kibo's work as a fisherman.

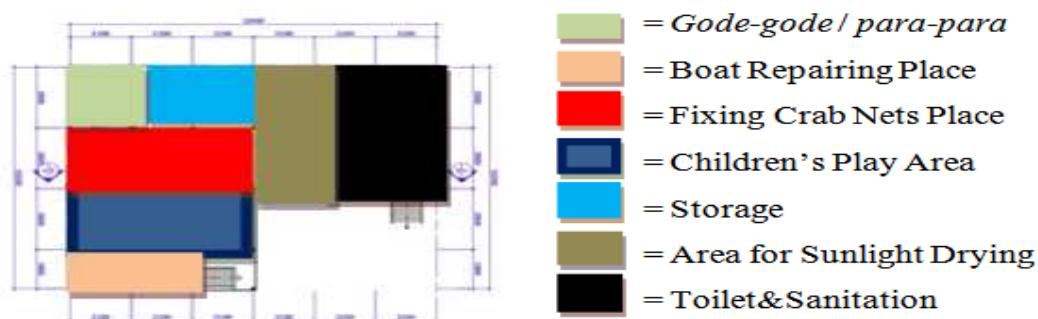


Figure 22: Function of Lower Part of La Kibo's House

Construction

La Kibo's house construction can be described as follows:

- the pillars of the house stand on a pedestal.
- A beam connects the poles that stand in a row with a peg hole connection, as well as the poles that stand in a longitudinal direction.
- They are connected by a beam with a peg hole system.
- The floor beams have the same size as the connecting beams of the long poles, installed at a distance of 70 cm. On this beam, the floorboards are installed.

- The pillars of the house stand continuously from ground level to the ridge.
- The construction of the truss legs rests on the broker beam, which continues to the end of the ridge post.

When compared with the ethnic architecture of Muna, Bugis, and Muna, the construction of the pillars with stone pedestals resembles a Bugis ethnic house, as well as the position of the beam connecting the poles with a peg system which in Bugis houses is known as pattoloq yawa and arateng. The beam connecting the transverse pole at the top or known in the Bugis house with pattoloq yaseq, also uses a hole and peg connection system. The beams that connect the long posts, known as pattoloq bareq in Bugis houses, are attached to the posts with half-notch joints and are pegged with wood. This construction is also the same as the construction of Muna's house.

Study Object 2: House Built on the Water

The second object house built on the water is Karadin's house, born on Gala Island in 1987 and currently 24 years old. Four people inhabit Karadin's house: Karadin, his wife, child, and his mother. His livelihood is as a fisherman with crab nets and fishing nets.

Form

Karadin's house is a stilt house built on the water with an initial size of 5 x 9 meters, later expanded to 8 x 16 meters. This house faces south and has access to land and also to the sea.

Figure 26 shows the vertical anatomy of the Karadin house can be described as follows; The house consists of under the house, the body of the house, and the roof. Under the house has a height taking into account the tide. At high tide, the boat can still be put under the house. The height under the house is about 3 meters from the bottom of the beach to the house floor. The body of the house has a height of about 2.2 meters, the ridge height from the floor is about 3.50 meters, and the overall height of the house is around 6.5 meters. The pillars of the house are planted at the bottom of the beach. Moreover, the space under the roof is used as a boat mooring area, while the body of the house is used as the main activity. The space under the roof is used as a place to store goods.

When compared with the vertical anatomy of the architecture of the Muna, Bugis, and Bajo ethnic houses, the vertical anatomy of the Karadin house is similar to the architecture of the Bajo house. The existence of some parts of the house demonstrates the conclusion, i.e., under the house above the water, which in the Bajo house is called the aje (foot/leg), the body of the house in a bajo house is called watang (body), and the roof part in a bajo house is called ulu (head). Kolong or aje is called diaruma, while watang and ulu are part called roma.



Figure 23: Karadin's House Perspective



Figure 24: Side View of Karadin's House

Vertical Space

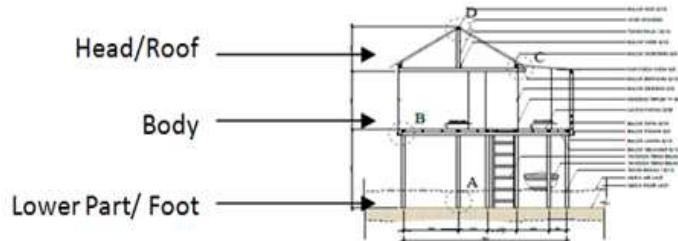


Figure 25: Vertical Plan View of Karadin's House.

Home Body Horizontal Space

The horizontal spatial pattern in the Karadin house consists of the front porch and living room in the south, the bedrooms on the west and east sides, the family room located before the kitchen and laundry room, and the back porch and courtyard on the north side. The main roof of the house houses the living room, bedroom, and family room, while the other roof covers the front porch and side porch as well as the back porch and kitchen area. The courtyard at the very back of the house (north outer side) is a place for storing goods and fishing gear for crabs and fish and access to the sea. The front porch and back porch, and backyard are connected by a side porch so that access does not go through the house's interior. Karadin's house has two accesses, namely access from land and access from the sea, so Karadin's house has two orientations: orientation to land and orientation to sea. The spatial arrangement of the body of the house can be seen in Figure 26.

Suppose a comparison is made with the horizontal anatomy of the Muna, Bugis, and Bajo ethnic houses. In that case, the spatial arrangement of the Karadin house resembles the arrangement of the Bajo ethnic house. This similarity can be seen in the hierarchy of spaces starting from the living room to the bedroom, after that the dining room & family room, then the kitchen room. The existence of a courtyard with direct access to the sea via stairs also emphasizes the resemblance to a Bajo house. However, it can also be seen the resemblance to the spatial arrangement of the Muna ethnic house. The similarity is that there is access between the front porch to the back porch and the kitchen, which resembles the 'tambi' function of the Muna ethnic house. In addition, the space zone also resembles the space zone in the architecture of Muna's house.

From the analysis of the space on the floor plan, it can be seen that there is the same type of space between the Karadin house and the Bajo house. Meanwhile, between Karadin's house and Muna's house, there is a path from the front to the back porch of Karadin's house, which resembles a "tambi" in Muna's house.

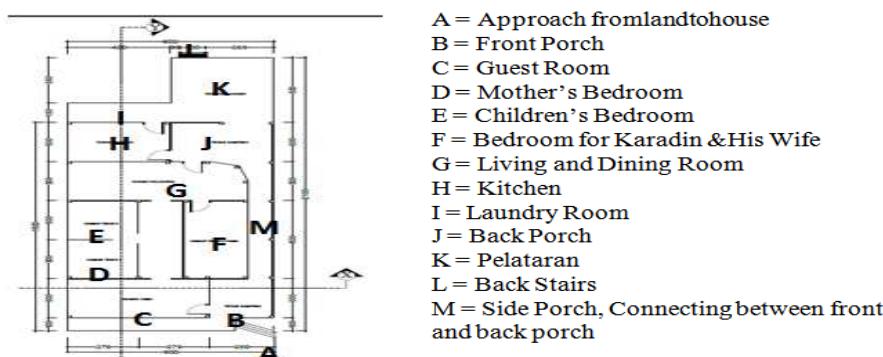


Figure 26: Horizontal Plan View of Karadin's House.

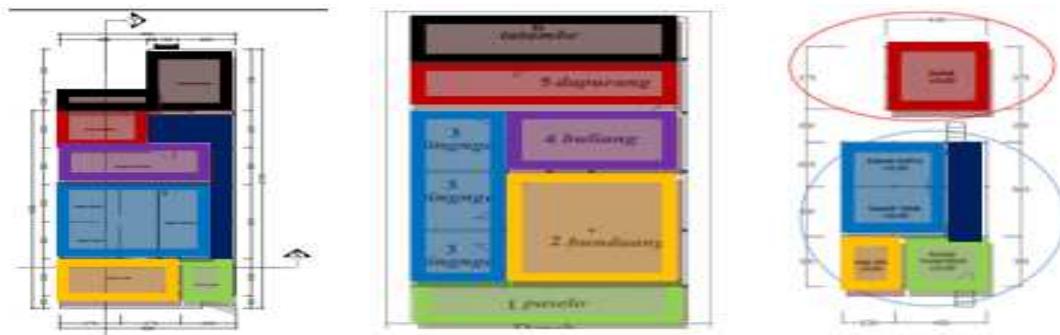


Figure 27: Plan View of Karadin's House

Figure 28: Plan View of Bajo's House (Gobang, 2017)

Figure 29: Plan View of Lambu Kapitalao (Andisiri & Faslih, 2019)

Horizontal Space Under the House

The function under Karadin's house is used as a boat mooring. Boats tethered under the bottom will be protected from the heat of the sun and rainwater. Therefore, the boat and its engine will be protected from damage. The existence of the boat under the house also makes it easier to supervise the owner. When juxtaposed with the ethnic architecture of Muna, Bugis, and Bajo, the function under the Karadin house is identical to the under function in the Bajo house.

Construction

Karadin house construction can be described as follows:

- House poles in round logs (waterproof mangrove wood) are embedded in the beach base.
- The poles in the transverse direction are connected by square beams with notches and nailed connections and the longitudinal direction poles.
- Square beams connect them with notches and nails system.

Beams with a longitudinal direction and functioning as a binder between the poles also function as floor beams. The floor beams have the same size as the connecting beams of the long poles, installed at a distance of 50 cm. On this beam, the floorboards are installed. The round wooden posts only reach the floor level, not continuous from the bottom to the ridge. The pillars that support the body of the house and the construction of the roof truss stand on transverse beams with pinholes and nailed connections. The easel beam is connected to the top end of the post, and the beam extends.

When juxtaposed with the ethnic architecture of Muna, Bugis, and Bajo, the construction of the round pillars of the Karadin house embedded in the sandy bottom of the beach is a characteristic of the construction of the pillars of the Bajo ethnic house. However, there is a difference in the Karadin house. This round pillar (water-resistant mangrove wood) only serves as a support for the floor. In contrast, in Bajo construction, this round pillar supports the floor and roof truss. The combination of round wooden joints for the pillars and square wooden beams in constructing the body frame and roof frame of Karadin's house is a new construction model for a house that stands on the water on Gala Island.

Building Material

The building materials used in Karadin's house can be described as follows; Water-resistant mangrove wood is used for pillars under houses. This mangrove wood is obtained from around the island of Gala. For the house pillars of the house and the roof frame, Kulahi wood was used, obtained on the mainland of Pajala village about 15 minutes from Gala island. The wooden beam used as a connecting rod in the longitudinal and transverse directions is wood from coconut trunks. The walls are made of spandex zinc, and the room divider is made of plywood. According to Karadin, plywood as a room divider facilitates the opening of the walls when there are events taking place in the house so that ample space is obtained. The flooring is made of wood, and the roof is made of zinc spandex. The use of square wooden blocks makes it easier to carry out construction and the use of plywood as a wall. Meanwhile, zinc spandex walls and roofs are used with consideration of long service life.

To compare with the ethnic architecture of Muna, Bugis, and Bajo, Karadin's house has similarities in terms of the ease of obtaining building materials. These three ethnic groups use materials that are readily available around the house construction area. Mangrove wood and coconut wood are obtained around Gala island, while kulahi wood is obtained on the mainland of Pajala village, about 15 minutes from Gala island. Adaptation of the use of the latest materials, such as plywood and zinc spandex, is carried out to make it easier to implement and get a long life for the material.

CONCLUSIONS

From the results of the study of 2 objects of coastal houses on Gala Island, the following conclusions are obtained:

- The characteristics of the spatial pattern and construction of the Gala island coastal houses built on the mainland are acculturation between Bugis and Muna ethnic architecture, the function of the space under as a form of adaptation to activities as fishermen, modification of construction as an adaptation of local construction knowledge, and the use of materials from natural resources local.
- The characteristics of the spatial pattern and construction of the Gala Island coastal houses built on the water are acculturation between Muna and Bajo ethnic architecture. The function of the space under and the backyard of the house is an adaptation to activities as fishermen, the orientation of the house is an adaptation to the geographical position between land and sea, the combination of construction materials is the adaptation of local construction knowledge and the use of materials from local natural resources.
- There is flexibility in changing the spatial arrangement, both in houses built on land and houses built on water due to cultural tradition activities.
- The form and essence of architecture reflect the social life of the community as a fisherman.

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