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The Pattern of Public Space on Barrang Lompo Island as High-Dense Environment in Makassar-Indonesia

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Abstract One of the problems in dense environments such as Barrang Lompo Island is the lack of public space that islanders use for various activities. Due to the lack of public space, they use the space around them as a gathering place. The purpose of this study is to know the pattern of public space in Barrang Lompo Island and the factors that shape this pattern. The island is located at Makassar in Indonesia and is one of the islands in the Spermonde archipelago group. It has an area of 0.49 km² and 4,793 inhabitants, of which 2,442 are male and 2,351 are female. To answer the research questions, qualitative research methods are used by observing the activities of the islanders in public spaces. The result of the research is that the public spaces on Barrang Lompo Island are scattered around the house, such as in the street, aisle, street corner, courtyard, under the houses on stilts (*Siring*), courtyard, square, around the cemetery, seashore and pier. The *bale bale* is the most important urban furniture as a meeting place in the public space. The proximity of houses to each other, the gatherings known as *Tudang Sipulung* and the dense environment are factors in the pattern of public space. This study provides benefits to local authorities in Barrang Lompo Island as a guide for public space planning. For example, comfortable *bale bales* or benches should be placed as gathering places in many places, especially along the street, so that the local wisdom of gathering can be maintained.

Keywords Pattern of Public Space, *Bale bale*, Dense Environment, *Tudang Sipulung*

1. Introduction

Dense environment is a phenomenon caused in urban areas by uncontrolled urbanization. One problem in densely populated areas is the lack of public spaces that people use for numerous activities during their leisure time. In addition, the decline of urban public space is due to the rapid development of residential and commercial buildings, which ultimately puts pressure on the provision of new green open space in the city [1]. The increasingly dense development in developing cities has implications for the reduction of open space [2].

The effects of the lack of public space can be seen in the activities of residents who use the space around them as public space. Elderly people and young men gather in the street corners, and children play in the street, in the courtyard and in the space between the buildings - a phenomenon in urban areas, especially in a dense environment [3, 4]. This phenomenon also occurs in Amman, a country with a high population density of more than 2 million inhabitants, where they mostly live-in apartments and do not promote social spaces, resulting in less social interaction between them [5].

Kampung Lor Kejawan Surabaya is an example of a densely populated environment in Indonesia that has a problem with the unavailability of public space used as a space for social interaction [6]. Not only is the space limited, but there are almost no free and open spaces where the community could relax and meet with their neighbors, except on the street in front of the houses.

Streets are recommended as public spaces in large cities

with dense environments that are used as places for various activities [7]. The results of a study in Kimisange, Rwanda, also show that streets were popular as places for recreation during the pandemic period [8].

Indonesia as a maritime country has many islands, both large and small. Many small islands off the city of Makassar are called the Spermonde Archipelago. In general, the islands have a very dense environment because they are very densely populated and many houses are built close together, which affects the lack of public space. The lack of public space affects the density of users, which also affects social interaction and the perception of safety [9].

Barrang Lompo Island is one of the islands of the Spermonde Archipelago, which has a very dense environment [3]. Early observations have shown that the islanders of Barrang Lompo Island use the space surrounding them as public space. Elderly people and young men gather in the afternoon or evening along the street, on street corners, and on the piers of Barrang Lompo Island. Mothers gather on the terrace, in the courtyard, or in the *siring* (space under the house on stilts) during the day, and children play in the space between buildings (Figure 1). One of the most important facilities to gather is the *bale bale*, which is used as a social space [10]. It is a small bench made of bamboo or wood that can be moved according to the needs of its users.

Gatherings are a habit or culture cultivated by the islanders in the public space of Barrang Lompo Island. The space that is used as a gathering place is not just a planned space, but a space that is spontaneously created. This space is a social space that arises spontaneously when two or more people meet [11].



Figure 1. *Bale bale* at courtyard as public space

There are many activities of the islanders such as chatting, eating/drinking and others, as well as children playing traditional games in the empty space. The purpose of this study is to know the pattern of public space in Barrang Lompo Island and the factors that shape this pattern. This study is very important because there are many cases in densely populated areas in Indonesia, especially on islands with limited land, where there are no

public spaces that can be used by residents for various activities. Thus, urban planners and local governments can plan public spaces according to the habits and character of island residents.

2. Literature Review

2.1. Dense Environment

Settlements are formed by many elements such as residential buildings, office buildings, schools, mosques, churches, neighborhood roads, parks, and so on. In a natural environment, elements of the element can be naturally built following the existing path pattern. There is no environmental arrangement that creates the space of public space used by its inhabitants to perform various activities. While in a planned environment such as housing, especially in the middle to upper housing, the developer creates a public space that can be used by its citizens to perform various activities.

A dense environment is caused by uncontrolled population growth due to urbanization, which causes the environment to become spacious and dense [12]. In such an environment, residents build according to their respective desires without any planning and without considering the surrounding environment. They build without paying attention to the boundary lines because the plots are too narrow, creating a dense environment that affects, among other things, the reduction of public space.

2.2. Public Space

Public space is space that is accessible to the public either directly within a limited period of time or indirectly indefinite. The space is designed to accommodate many people (audience) in the performance of various activities [11]. Public space itself can consist of streets, sidewalks, green open spaces such as city parks, forests, and others.

Public spaces such as main streets, market streets, shopping centers, community centers, parks, playgrounds, and neighborhood spaces in residential areas play an important role in the social life of the community. Public space acts as a 'public service', a shared resource through which experiences and values are created [12]. These social benefits may not be obvious to outsiders or public policy makers.

Public space is a space for social activities that serve and influence the lives of city dwellers. Public space is also a place for functional activities and ritual actions that bring a group of people together in both daily and periodic activities [13]. In addition, public open space is an essential element of urban space because it is located in places with high activity intensity.

Urban public spaces can be private and public space. A private space is an open space that is owned by a person or institution and can only be used by the owner. Private open

spaces can be yards, buildings, private gardens, and others. Public space, on the other hand, is open space that is owned by the public, i.e., the government or an institution, and can be used by the public with the permission of the owner. In this case, public space can be city parks, environmental parks, beaches, green spaces, recreational areas, and others [14].

2.3. Typology of Public Space

Drawing on historical developments, the city's public open spaces offer a broader view of forms of variation and character. Human attitudes and behaviors influenced by technological developments also affect the typology of public space. Public space is divided into several types [14], namely:

2.3.1. Public Parks

Public parks in the city center with a variety of services depend on their function. There are two types of parks, namely: national parks with the scope of this service are at the national level and the location is in the city center. Characteristic of this park is an open space zone that plays a very important role and its area exceeds that of other city parks. The second is the urban park, located in the city center, in the form of green areas surrounded by shade trees, or urban forests with traditional patterns or new design developments. A public park can be a green space in the city used for recreational activities and located in an office, commercial or residential area of the city, such as neighborhood parks, a public space developed in a residential area for public activities such as playground, sports and relaxation for the surrounding community or mini parks, a small park surrounded by buildings.

2.3.2. Squares and Plazas

Squares can be divided into Center Square and Corporate Plaza. Center Square, as a historic development material, is located in the city center and is frequently used for formal activities such as National Day commemorations and as a meeting place for the street corridors in the area. It is also used for social, economic and cultural community activities [15]. The corporate plaza is a compound of commercial or office buildings located in the city center, and its management is carried out independently by the office owner or manager.

2.3.3. Memorial

This public space is used to commemorate someone or to commemorate important events for humanity or society on a local or national level.

2.3.4. Markets

Markets of this type are farmers' markets, that is, open spaces or streets used for farmers' markets or flea markets. They are often temporary or held only at certain times in existing areas such as parks, downtown streets, or parking

lots.

2.3.5. Streets

The street is a public space as a transport infrastructure divided into many types, namely pedestrian walkways, pedestrian passages, thoroughfares, traffic-restricted streets and city streets. Pedestrian walkway is a part of the city where people move on foot. It usually involves planned or existing sidewalks and paths that connect one destination to another. A pedestrian mall is a street closed to vehicular traffic with pedestrian amenities such as benches and plantings, often located along the main street in the downtown area. Transit mall, development of improved transit access to downtown, replaces traditional pedestrian malls with bus and light rail malls. Traffic-restricted streets are used as public open space; traffic and vehicle restrictions may include pedestrian improvements and sidewalk widening and street tree planting. Urban trails connect parts of cities through integrated urban trails, use of streets and open spaces planned as settings for ecological learning; some are designed and marketed as trails.

2.3.6. Playground

This type of public space is located in the neighborhood; often includes traditional play equipment such as slides and swings; sometimes includes adult amenities such as benches; may also include innovative designs such as adventure playgrounds. In addition, schoolyards are also playgrounds; some have been developed as places for environmental learning or as community-use spaces.

2.3.7. Community Open Spaces

Vacant space in a residential area is designed, developed, and managed by the local community. This space may include view gardens, playgrounds, and community gardens; is often developed on private property; is not officially considered part of the cities' open space system; is often vulnerable to displacement by other uses such as residential and commercial development.

2.3.8. Greenways and Parkways

It is a pedestrian zone connected with recreational areas and open spaces full of gardens and green areas, and also has pedestrian and bicycle paths.

2.3.9. An atrium

An atrium is a space in a building that acts as a link for the surrounding spaces and is often used for commercial activities and a pedestrian mall. Many cities count it as open space; it is privately developed and managed as part of new office or commercial buildings.

2.3.10. Neighborhood spaces

Publicly accessible open spaces such as street corners,

steps to buildings etc. are claimed and used by people. It can also be vacant or undeveloped land in the neighborhood, including undeveloped lots and future building sites. This space is often used by children, teenagers, and residents.

2.3.11. Waterfronts

This space can be harbors, beaches, riverbanks, piers, and lakeshores. It is open space along waterways in cities; improved public access to waterfront areas and development of waterfront parks.

2.4. The Use of Public Space

Public space in a city is distributed among several urban areas, such as the city center, at the center of urban activities (offices, commerce, housing and other residential areas are used for various activities: as a place of expression, markets, social and cultural gathering). There are three main activities in the public space, namely as a place for gathering, as a place for the market, and as a place for community traffic that lasts a day [16]. In addition, the activities in public space can be divided into three groups, namely necessary activities, optional activities, and social activities. Necessary activities are the activities that people need to do, such as crossing the outside of an apartment to reach public transportation. Optional activities are the activities that people choose to do for clear or unclear reasons, such as taking a walk to get fresh air or standing or sitting outside to enjoy life. These activities are free to choose and mainly depend on the environmental conditions; a good quality outdoor space will encourage people to stay, sit, play, etc. [10]. Social activities include physical contact and passive contact. Physical contact includes children playing, greetings, and conversations. Passive contact includes simply seeing and hearing other people.

2.4. The Gathering is a Culture

Gathering is a culture that has long belonged to the Bugis Makassar tribe in South of Sulawesi-Indonesia, known as *Tudang Sipulung* in Bugis Makassar language. The term of *Tudang Sipulung* is composed of two words have important meanings, namely tudang which means sitting and sipulung which means together. So *Tudang Sipulung* means sitting together and coming together to discuss various things including problem solving in the community [17, 18, 19, 20]. If it is related to the problem of governance relations or citizenship, then culturally and politically it is related to the issue of public space or space for the public (the people) to voice their interests in order to find solutions to the problems they face [20].

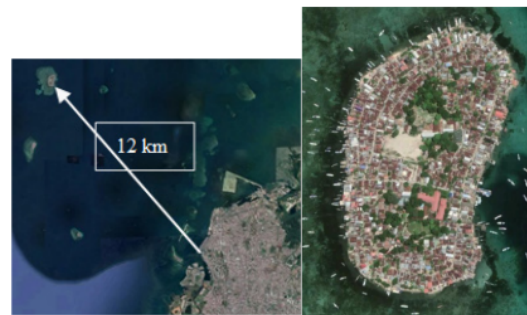
Tudang Sipulung is culturally related to the problem of public space or community expressing its interests to find solutions to the problems it faces. This means that *Tudang Sipulung* is a space that can mediate between the public

interest and the government (ruler) because it is based on democratic principles [11].

3. Methods

3.1. Research Area

Barrang Lompo Island is located about 12km from Makassar city and can be reached by speedboat in about 1 hour and by regular boat departing from Kayu Bangkoa Makassar pier in about 2 hours (Figure 2). The area of the island is 0.49 km² with a population of 4,793 people, of which 2,442 are male and 2,351 are female [21]. The land use of Barrang Lompo Island is 80% dominated by settlements with an area of 153,102 m².



Makassar city

Figure 2. Location of Barrang Lompo island

3.2. Research Methods

Based on the research objectives, what research applies are "Qualitative Research Methods." Bogdan and Taylor in Moleong [22, 23] propose that the qualitative method is a research procedure that provides descriptive data in the form of written and oral statements about the people and their behavior that are observed. Participant observation is a very common technique used in various scientific studies, including environmental research [24]. The basic principle of this technique is that researchers try to overcome the boundary wall and eliminate the distance between the observed object and the subject.

4. Result and Discussions

4.1. Public Space in Barrang Lompo Island

In Barrang Lompo Island, there are many public spaces that are frequently used by the islanders, namely: streets, including ring roads, including aisle and street corner, courtyard, *siring*, square, seashore, pier and around the cemetery (Figure 3).



Figure 3. Public Space in Barrang Lompo Island

4.1.1. Street

Streets, including ring roads, alleys, and street corners, are used by islanders as gathering space. Generally, they congregate on *bale bale* placed under trees or on *bale bale* in permanent or temporary use. The sheltered *bale bale* provides comfort to the people who gather on the site. The *bale bale* is an extension of the house because it has functions such as a living room, a dining room, and is even used as a bedroom [25]. They gather on the *bale bale* while engaging in various activities such as talking, sleeping, and watching people, and seeing *bentor* (modified motorcycle) that travels around the island transporting passengers.

4.1.2. The Courtyard

The courtyard (but not all houses on this island have a courtyard, because the surrounding area is very dense) becomes a public space for the islanders, because people always gather there. They also place *bale bale* in front of the house or in the front yard, which is used as gathering place. Houses without a front yard use their patio as a gathering place by placing *bale bale* or using the wall of the patio as a place to sit. Children use the yard as a playground when it is not heated by the sun.

4.1.3. Siring

Siring is a space under the house on stilts found on Barrang Lompo Island. In the past, the *siring* served as cattle shed, storage for farm implements and a drain for the dirty water from the kitchen. Nowadays, the function of the *siring* has changed into a multifunctional space and on the coast of Bone Regency, South Sulawesi, it is a multifunctional space in the morning and evening [26]. According to our observations, many people gather on the *Bale bale* at the *Siring*. Many activities of the islanders such as chatting, sleeping and working take place on the *Bale bale*.

4.1.4. Square

The square is located in the center of Barrang Lompo

Island and serves for various activities such as: playing football, playground, and it is used as a place of prayer *eid fitri* and *eid adha* for Muslims. Around the square, there are several *bale bales* that are used by the islanders as a meeting place while they observe the activities in the square.

4.1.5. Seashore

Along the coast of Barrang Lompo Island, many houses are built close together, either facing the sea or with their backs to it. Some islanders even engage in land reclamation to gain space to build houses. This pollutes the coast and reduces public space along the coast. In addition, public space is limited by the fact that many boats are moored on the shore and even the damaged boat is repaired on the shore. A few areas can only be used by children to gather and play, even the area around the boat moored on the shore is used as a playground. The children not only play, but also swim and catch small fish.

4.1.6. Pier of Barrang Lompo Island

The Barrang Lompo Island pier is located on the east side of the island and is equipped with wooden benches placed to the left and right of the pier. There is a small shop in front of the pier. In the mornings around 07.00 it gets crowded here when islanders who want to go to Makassar or other islands get on the boat. Around 11:00 am, the pier is again crowded with people leaving the ship from Makassar. In addition, there are many small boats at the pier with passengers from Makassar or from other islands around Barrang Lompo Island. The pier becomes a public place where islanders gather to watch the activities while enjoying the view of the sea and feeling the breeze blowing there. Children come to the pier to swim and fish. Elderly people come to the pier to watch the scene and sometimes use it as a place to sleep. Islanders gather at the pier in the evening to enjoy the view of the lights of Makassar city.

4.1.7. Around the Cemetery

The site of the cemetery on the island of Barrang lompo is adjacent to the empty square and is used by the islanders as a sports field, mainly for volleyball in the afternoon and a spectacle of the islanders. There is a *bale bale* next to the kiosk and the islanders sit on the *bale bale* and watch the volleyball game. Almost every day in the afternoon, many people gather in this square to watch the volleyball game while the children play the traditional game or play football around the cemetery.

4.2. The Use of Public Space in Barrang Lompo Island

From the observations and the questionnaire, women (66%) use public space the most than men (34%) in public space. Public space is good when it is used by many groups and dominated by women [27].

Street both main street (24%) and walkway (22%) also

front yard is preferred public space by placing *bale bale* as meeting place in many activities. Only 4% use the seashore as a meeting place and playground because the place is small and dirty. The space around the cemetery is used by islanders as a meeting place when they play volleyball (5%).

Based on the distance between gathering space and the respondent's house, 75% of the respondents live within 0 to 20 m of public space. The public space is located around the house, such as in the front yard, on the street, and in the *siring*. They have a family relationship, neighbors and children, and can easily access the public space. The islanders who use the public space more than 100 meters from their house are people who use the public space with a specific purpose, such as watching the volleyball game around the cemetery, or young men who want to enjoy the scene at Barrang Lompo pier.

There are many activities of islanders in public spaces. For most respondents (49%), chatting with other people around them is the main activity. This activity usually takes place on the *bale bale* along the street. Most children use the public space as a playground, e.g., to play football, marbles, rubber games, hide and seek, and other traditional games (25%).

The time of using the public space differs according to the activities of the islanders in the public space. In the morning, islanders use the courtyard, *siring*, and the pier as public space. In the morning until noon, not so many islanders gather in the public space because they work and children go to school. Also, the weather gets hot at noon. Many islanders stay at the *siring* because they feel comfortable on the *bale bale*.

On the island of Barrang Lompo it becomes crowded in the afternoon, for the air is cool. Many islanders gather on the benches or *bale bale* along the road, in the courtyard and between the houses. The young men play football on the square and the children play surround it.

The streets on the Barrang Lompo islands both the ring roads and alley are popular meeting places, as can be seen from the many benches or *bale bale* along the street. Houses without yard put their *bale bale* at *siring* or their brick benches along their terrace houses as sitting space. This public space is often used by islanders in the afternoon because it is windy and cloudy. During the day, all public spaces on the island are used by islanders in the cool areas such as under the trees and at the *siring*. Barrang Lompo Island pier is crowded in the evening because many islanders gather there to enjoy the lights of Makassar city. Islanders use the public space in the evening, especially on the street, which is lit up, and on the pier to see the lights of Makassar city and the many food vendors.

The Barrang Lompo islanders are family kinship, and that is why their house closes each other. Based on it, the users of public space in one group are families and their neighbors. Space between house and surround is used as the public space by putting *bale bale* also *siring*, yard, and the street in front of their house. They are gathering in the

public spaces, which are both in agreement and spontaneous. When they sit on the *bale bale*, someone comes in or they call people who pass by to join.

4.3. Discussions

The main livelihood of the islanders of Barrang Lompo Island is fishing. They catch a fish about a month and return back to the island for two weeks for rest and back to work in the sea. During the rest time, they gather with their family and neighbors. They gather in front of the house in the morning with their wife and neighbors while waiting the peddler who sail vegetables and other ingredients.

Siring under the house on stilts is spaces that give comfortable all day to people because the space protects from the sun. It is the space as a gathering space where people do many activities such as, sleeping, and it has other functions so that the *bale bale* is an extension space of the house. Besides that, the islanders who have no yard make bench brick (about 60 cm of height) along their terrace as a sitting space for the owner and neighbors. Space between houses is used by children for playground and gathering space for teenagers.

The streets on Barrang Lompo Island are very important to the islanders [15] there are few public places in the dense environment. In most Malaysian towns, streets play an important role as settings for activities, especially within the tropical weather [28]. In addition, the street in the city of La Rambla Barcelona is used as a public space through the integration of quality public transport and walking facilities and open space functions in a dense urban setting, even along a major arterial road [29].

Based on observations and interviews with the islanders, they place their *bale bale* or benches by the street, either by the ring road or by the aisle as a gathering place. They are used as meeting places in the afternoon because the air is very hot during the day. However, some *bale bales* are also a gathering place during the day because they are under a tree and some roof *bale bales*. The street corner is also a popular meeting place for the islanders of Barrang Lompo. Many *bale bales* on the street corner serve as a place to sit and sell food, snacks and water.

The square on Barrang Lompo Island is used only in the afternoon because of the hot air when the sun is shining. It is used by young people to play football and children to play around it. Some islanders have set up *bale bale* around the square to serve as a gathering place while observing the activities on the square. It is also used 2 times a year for *Eid-Fitr* and *Eid-Adha* prayers by Muslims. The space around the cemetery is used as a volleyball court in the afternoon, inviting islanders to gather around the cemetery.

There are few places on the beach of Barrang Lompo Island that can be used by the islanders as a meeting place to enjoy the scenery and specially to watch the sunset. This is because many islanders build their houses by reclamation and build with their backs to the sea. There are few places on the beach and a small space between the

houses that can be used by children to play. Also, many boats have docked on the beach, so it is difficult for children to play around the beach.

Many islanders come to the pier in the morning to see large ships from Makassar and other small islands with passengers' dock at the pier, and vice versa, passengers from Barrang Lompo Island board the ship that takes them to Makassar or other islands. At night, especially on Saturday night, they can admire the lights of Makassar city while enjoying food and drinks.

The islanders of Barrang Lompo still have a family kinship whose habits include meeting with family and neighbors [30, 31]. According to the questioner, the islanders who gather are usually families. They use *bale bale* that is near their house, such as in the *siring*, in the yard, on the street, and on street corners. They gather while talking about other things in their neighborhood. When they gather, they call on passersby to join them. The number of people who gather varies from 2 to 8 people or more.

As described above, Barrang Lompo islanders choose public places around their homes as meeting places, so they simply walk from one place to another. Most children ride bicycles around the island or walk to a public place a little farther from their house. Some children and youth also use motorcycles to get from one place to another. According to our observations, most of them just walk to public places. Moreover, they feel more comfortable in public places than in the house because there is a fresh breeze, especially in the *siring* and under the trees. The tree is the most important thing in the public space [25]. Besides chatting, most of the activities in the public space include observing the scenery, such as watching the activities of people passing by and observing the motor *bentor* surrounding the island. Unfortunately, in the western part of the island, there are not so many places on the beach where you can watch the sunset.

The lack of public space is the main problem on Barrang Lompo Island, as the houses are built close together. The establishment of parks and public space can address many of the ills of high-density cities that affect human behavior. Cities need to provide a variety of green spaces and public parks to accommodate sporting events and passive activities. [5].

The high density of the island and the lack of public open spaces mean that residents do not spend time outdoors during the day (between 10:00 and 16:00) because the air is very hot during the day. Generally, they gather in the *siring* of the stilt house, on the terrace of the house and in some places where there are many trees. The children play from one place to another to protect themselves from the sun's rays. At 4:00 pm, when the air is no longer hot, the public places become crowded. People gather on the *bale bale* along the ring road, in the aisle and other public space.

Due to the dense environment, their houses are close together, and many houses have no fences, so they can

meet anywhere in the neighborhood at any time. As fishermen who work only at night look for fish in the sea, they use their free time during the day to rest and gather. They can either arrange to meet or come together spontaneously. Since they come together often, the gathering is a habit of the islanders.

5. Conclusions

The pattern of public space in Barrang Lompo Island is the public space that spreads around the houses, such as in front of the house (courtyard), *siring* of the houses on stilts, along the street, on the street corner, in the square, around the cemetery and on the pier. The *bale bale* has a very important function in the public space because it is used as a gathering place. The public space is used at 3 times: morning, afternoon and evening. In the morning and afternoon, many people gather in the street, street corner, aisle, courtyard, square, pier and seashore. The pier and some illuminated places along the street are the public space in the evening. The reason for this pattern is that the islanders are families whose houses are close to each other and they often gather as part of their culture or habit. The space around their house is used as a gathering place for themselves and other neighbors. Another factor is that Barrang Lompo Island is a dense environment with very few public green spaces, which affects the temperature of the environment. These conditions affect the time pattern of using public spaces, such as morning, afternoon, and evening.

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