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River Coastal Settlement Building Regulations on Settlement Conditions in Cikoang Village

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Abstract—Building regulations in coastal settlements on settlement conditions in Cikoang Village. This research was conducted using quantitative analysis techniques supported by descriptive qualitative methods. The results of this study indicate that the Cikoang settlement is a coastal settlement with an elongated spatial pattern following the direction of the river so that there are rules that apply to buildings around the river but Cikoang Village does not have a defined river border, this could be due to gradual erosion of river water. to the plain surface due to the absence of embankments at the boundary. Analysis of the Cikoang Village building layout consisting of KDB, KLB, and GSB according to the formula and standard directives for RTBL Makassar City and its surroundings. Cikoang Village which is included in the research radius is classified with medium building density, namely 41 – 61 buildings/ha. The settlement orientation pattern is linear and the infrastructure facilities in Cikoang Village are sufficient and can serve the surrounding population.

Keywords: building layout; Cikoang; Coastal; river border; RTBL

I. Introduction

(Tobing, 2004) in his study of the role of building regulations in the process of building arrangement, illustrates an abstract about building regulations which is one of the factors that affect the physical product of buildings in urban areas. Therefore, building regulations play an important role, especially for parties who are actors or related to building procurement activities. However, in the practice of urban development, building regulations are often ignored or not implemented seriously. Director of Building Arrangements, Directorate General of Human Settlements, Ministry of PUPR, Adjar Prajudi, explained that the Building Regulations are also important as an instrument for controlling development, both preventive and curative.

Thing the aim so that development in the area walk orderly, match, and in tune with environment in accordance Settings in setting room. "Temporary that, related aspect technical, importance local regulations buildings to ensure reliability building building in area in Thing safety, health, convenience, and convenience," Adjar added. In addition, local regulations Building Building also play a role in aspects of locality that make it a regulation maintenance building which accommodate various payload Specific local in each area.

Cikoang is located in the southern part of Takalar Regency, in the District of Mangarabombang with Jeneponto Regency in the north and Laikang village in the south. In Cikoang there are 4 environments, namely Cikoang, Pattopakang, Bontoparang, and Panjanglalang. The housing is built close to each other near the river in the style of the Makassar Balla Rate or Long House building. This residential area is located adjacent to the river which makes it Panjanglalang. The housing is built close to each other near the

river in the Makassar Balla Rate or longhouse style. This residential area is located near a river which makes it classified as a residential coastal area just affect building regulations that need to be considered. Study this try observe and explore how the building regulations are there is play a role in the coastal residential area.

Coastal Area

Coastal is an area located on the edge of the sea between the lowest tide and the highest tide where the coastal area consists of land and water. In coastal areas, each region is still influenced by land activities (carried out in water areas) and marine activities (carried out in land areas), so it can be concluded that the two areas are mutually dependent on each other, or can also be interpreted as influencing each other (Yuwono , 1992;Triatmodjo, 1999).

According to PUPR Ministerial Regulation No. 28 of 2015, the border line on the river is not embanked in urban areas as referred to in Article 4 paragraph (3) letter a, specified:

at least 10 (ten) meters from the left and right banks of the riverbed along the river channel, in the event that the depth of the river is less than or equal to 3 (three) meters;

at least 15 (fifteen) meters from the left and right banks of the riverbed along the river channel, in the event that the depth of the river is more than 3 (three) meters up to 20 (twenty) meters; and

at least 30 (thirty) meters from the left and right banks of the riverbed along the river channel, in the event that the depth of the river is more than 20 (twenty) meters.

Article 8 The line of the embankment of the river outside the urban area as referred to in Article 4 paragraph (2) letter d, is determined to be at least 5 (five) meters from the outer edge of the foot of the embankment along the river channel.

The building is the standard used for the building plan area, namely 60%: 40%, which is 40% of the plot area for the building plan area and 60% for open space/green open space. Minimum requirement of occupancy area is 9m²/person. The standard number of occupants is an average of 5 people/family.

The form of the house is divided based on the architectural style: Modern House (Rumah Batu), a house made of stone and located on the mainland. Traditional Houses (Rumah Panggung), a house made of wood that adapts to nature and is located up above the water, at low tide and on land with the floor above the ground/water level (±2m). Development House, a building that was originally a house on stilts, but underwent a shift in shape by using the lower part as a room that can be used for additional activities .

While the shape of the house is based on the relationship or attachment between buildings: Single House, a house that stands alone in a parcel, separated from the house next to it. Row/Couple Houses, houses in pairs (couples) are usually one roof in one parcel, usually a maximum of 6 rows. Flats, multi-storey houses that are built vertically in functionally structured sections.

The height of the building is the distance of the full floor of a building from the ground floor to the highest floor. The maximum height of the roof of the building is 12 meters. Standard building height 3/2 from GSB.

The layout of the building talks about the orientation of the building, something that is the basis of the population in determining the direction of the building which is believed to get good luck.

Placement of buildings, refers to the concept of good building layout in terms of occupant comfort. The laying of the building is based on Building coverage which shows the comparison between the area of the built parcel with the total area of the parcel. Eligibility conditions for a dwelling, maximum BC 60% : 40%.

A land transportation infrastructure in any form, covering all parts of the road including complementary buildings/equipment intended for the traffic of vehicles, people and animals. Types of roads in settlements include environmental roads and footpaths. Infrastructure facilities are supporting a settlement to meet the needs and improve people's lives and livelihoods.

Basic Building Coefficient (KDB), the ratio/ comparison of the building's ground floor area (LLDB) covering the land surface (land coverage) with the building parcel area (LPB). The KDB limit is expressed in percent (%).

KDB= (Ground Floor Area)/(Land Area)

Building Floor Coefficient (KLB), the percentage ratio of the total floor area of all buildings that can be built and the area of land/ plotted land/planning area controlled. KLB is usually only for high-rise buildings. By knowing the floor coefficient of the land to be built, it will be easier to calculate the total floor area of the building. Thus, it can also find out the estimated height of the planned building. KLB in each region has a different figure. The difference in the number of outbreaks is due to differences in land use and zoning. The denser an area, the greater the KLB value. When the KLB value gets bigger, it means that the total floor area that can be built is also getting bigger.

Road border, the front yard boundary and the front boundary of the yard fence that may be erected.

Building Border, the boundary of the leading building wall on a land parcel. Small house with house area >90m². Minimum frontage of 3m. If the building demarcation line has not been determined by the local government, a minimum standard of the width of the road plus 1 m can be taken. To find

out the boundaries of the building, data are needed such as the dimensions of the road that affect the planning area, speed and reaction time to brake the vehicle.

Side clearance line, the building boundary line that may be erected on the side to the side yard boundary. Small house with house area >90m². Side border min. 2m.

Rear Clearance Line, the boundary line of the building that may be erected on the back of the rear yard boundary.

The distance between one-story houses is at least 4m. The distance between buildings with different parcels is at least 6m and 3m with a parcel boundary. Sufficient distance between houses can prevent the spread of fire during a fire and can circulate fresh air into the building.

II. Method

This study aims to explain the rules of building coastal settlements on settlement conditions, by revealing objective phenomena based on surveys, observations, measurements, and literature.

Data collection

Therefore, quantitative research methods are used. Quantitative methods are used to measure the condition of buildings around the coastal settlements of Cikoang Village.

Data analysis

The types of data that have been collected in this study to find solutions to problems are described in table 1 below:

Table 1. Table of Data Requirements

No	Required Data		Benefits Data	Type Data	Engineering Retrieval Data
	Aspects	Data			
	Rule aspect coastal settlement build-ings				
	Riverbank		Explaining the building codes of settlemetns	Primary data, survey, observation, and map imagery	
	Building layout	• Building • House shape •Building height			
2	Building intensity	• KDB • KL B • Roadside • Building linde • Clear clearance line • Distance line between houses			
	Building layout	• Orientation building • Building placement			

The data above will then be analyzed by linking it with related theories, concepts, regulations, local environmental conditions and opinions (opinions/wants/hopes of the surrounding community).

The data collected from the results of field exploration through direct observation were collected and grouped according to their respective groups. After that, the condition of each data group was identified. The results of the identification of each group of data are then compared to determine the general character of the coastal river settlement environment in Cikoang Village.

III. Analysis Results and Discussion

Housing has a very strategic role in shaping the character and personality of the nation as one of the efforts to build Indonesian people as a whole, self-identified, independent, and productive so that the fulfillment of housing needs is a basic need for every human being, which will continue to exist and develop according to stages. or human life cycle.

The development of housing and settlement areas that are based on the community provides the widest possible rights and opportunities for the community to take part. In line with the community's role in the construction of housing and settlement areas, the Government and local governments have the responsibility to become facilitators, provide assistance and facilities to the community, as well as conduct research and development covering various related aspects, including spatial planning, land, environmental infrastructure, material and component industry, construction and design services, financing, institutions, human resources, wisdom local government, as well as supporting laws and regulations.

The general policy of housing development is directed to:

Fulfill the need for decent and affordable housing in a healthy and safe environment supported by sustainable public infrastructure, facilities and utilities and which are able to reflect the lives of people with Indonesian personalities;

Availability of long-term sustainable low-cost funds to meet the needs of houses, housing, settlements, as well as urban and rural residential environments;

Realizing harmonious and balanced housing in accordance with spatial planning and land use that is efficient and effective;

Granting usufructuary rights without compromising state sovereignty; and

Encouraging foreign investment climate.

Arrangements for the implementation of housing and settlement areas are carried out to provide legal certainty in the implementation of housing and settlement areas, support regional structuring and development as well as proportional population distribution through the growth of residential environments and residential areas in accordance with spatial planning to realize a balance of interests, especially for low-income people, increase the power of the poor. the use and utilization of natural resources for housing development while taking into account the preservation of environmental functions, both in urban and rural residential areas, and ensuring the realization of housing that is livable and affordable in a healthy, safe, harmonious, orderly, planned, integrated environment. , and sustainable.

The implementation of residential areas is carried out to realize an area that functions as a residential environment and a place for activities that support a planned, comprehensive, integrated and sustainable livelihood and livelihood in accordance with the spatial plan. The implementation of the settlement area aims to fulfill the rights of citizens to a decent place to live in a healthy, safe, harmonious and orderly environment as well as to ensure the certainty of living, which must be carried out in accordance with the direction of developing an integrated and sustainable residential area.

A good building layout is a building design that has a basic building coefficient level (KDB), a building floor coefficient (KLB) and a building boundary line (GSB) that does not exceed the standards that have been set and has a green basic coefficient (KDH) as a green area or absorption. water. The research area is a residential area facing directly to the river. The condition of the building layout in the settlements of Cikoang Village, especially in the road corridor, is dominated by residential houses, whether permanent, semi-permanent, or non-permanent.

Figure 2. Sampling Map of Cikoang Village
Source: Google Earth, 2019

The following is a sampling map in Cikoang Village, the data taken is divided into two, namely sampling of building layouts, namely types of coastal settlement buildings and building intensity measurements to calculate KDB, KLB, GSB, and the distance between houses.

Riverbank

River Frontier Line (GSS) is a virtual line on the left and right of the riverbed which is designated as a river protection boundary. The definition of GSS is in accordance with the Regulation of the Minister of Public Works and Public Housing Number 28 of 2015 concerning the Determination of River Border Lines and Lake Border Lines.

Figure 3. River border of Cikoang Village
Source: Google Earth, 2019

According to the Minister of PUPR Regulation No. 28 of 2015, the method of determining the border line on an undamaged river in an urban area as referred to in Article 4 paragraph (2) letter a, it is determined in paragraph 1 that it is at least 10 (ten) meters from the left bank and right of the riverbed along the river channel, in the event that the depth of the river is less than or equal to 3 (three) meters.

The result of measuring the river border line of Cikoang Village through Google Earth measurements is 9.7m which is quite less or average than the standard river border line that has been set in the Minister of PUPR Regulation. The buildings that are still allowed to stand on the river border are, among others; water resources infrastructure buildings, bridge and dock facilities, gas and drinking water pipelines, and stretches of electric cables, communications and electricity buildings.

Building Layout

Given that in Cikoang Village there are different layers of society according to custom, the shape of the building is also divided into various kinds. As time goes by, some houses can be seen that are different from other houses.

In Cikoang Village there are modern houses (stone houses), traditional houses, and developing houses. Traditional houses have several variations that can be distinguished through the roof of the house which is the kinship structure and social stratification of the occupants of the house. This house is made of wood that adapts to nature and is located up above the water, at low tide and on land with the floor above the ground/water level (±2m)

Figure 4. A view of the traditional building from the local community of Cikoang Village
Source: Google Earth, 2019

Figure 5. Building view of the traditional chief's house, develoment building, and modern building

The form of housing on the edge of the main road and on the riverbank is a form of single-house dwelling. These residential neighborhoods are surrounded by a fence of boards/wood and cement as ownership boundaries, but many are made without fences. Residential orientation generally leads to roads and rivers.

Building Density

Building density is one aspect in the effort to control the development of spatial planning and building layout as well as environmental planning that pays attention to harmony, functionality, aesthetics and ecology in the use of land space. Building density affects the intensity of the built area which is the optimization of land capability compared to land area.

Table 2 . Building density classification

CLASSIFICATION	BUILDING DENSITY
Very low	<10 buildings/ ha
Low	11-40 buildings/ ha
Medium	41-60 buildings/ ha
High	61-80 buildings / ha
Very high	>81 buildings / h a

Source: Minister of Public Works Decree No. 378/KPTS/1987, Appendix No. 22

The level of building density in Cikoang Village can be measured by the table above, the number of houses calculated per hectare is around 43 houses so that the building density level in Cikoang Village is classified as medium building density.

The calculation results for building intensity in Cikoang Village obtained through Google Earth measurements are as follows:

Street size : 4 m

GSB : 3m

KDB : ±50%

From the results of field observations, it is known that the basic building coefficient (KDB) for community settlements in Cikoang Village has an average of 50% where this KDB can be seen from the comparison of the ground floor area of the building with the area of a building plot.

Figure 6. Sample measurement of **DBH**

KLB : 1.1

KLB (building floor coefficient) is the percentage value of the comparison between the total floor area of the building that can be built and the available land area. In this case, the KLB number is used to determine how many floors the building can be built as a whole. On the other hand, the KLB can be used as a guide in determining the maximum safe limit for the number of floor heights that are allowed to be built.

Rear clearance line : 0 m – 3.75 m

Line distance between houses: 1 m – 5 m

The analysis of the suitability of the building layout in Cikoang Village, Takalar can be seen in the following table.

Table 3. Analysis of the Cikoang Village building layout

Function Building	System Building	Existing Conditions	RTBL Directive	Remark
	KDB	50%	M a x 60%	Appropriate
Per m uk i man	K L B	1.1	M a x 1.8	Appropriate
	GSB	3	4/2 + 1 = 3	Appropriate

Based on the ISSN Journal 2614-3976 concerning the Spatial Planning of Housing and Its Development Judging from the Local Wisdom of Cikoang Village, the researcher presents data that the development of community housing can be seen from the influence of customs throughout the years.

Table 4. Number of grids and **houses in 11 years**

Year	Grid Number	Percentage	Housing Number _	Percentage
2006-2009	60	25.21%	265	31.66%
2010-2013	114	47.9%	336	40.14%
2014-2017	64	26.89%	236	28.2%
Total	238	100%	837	100%

Figure 7. Cikoang Village housing development map
Source : Linears : journal of architectural science ISSN 2614-3976

Figure 8. Cikoang Village Infrastructure viewed from Google Earth 2020

KBBI states that a means is anything that can be used as a tool to achieve a goal or goal. And infrastructure is everything that is the main support for the implementation of a process (business, development, project). The function of facilities and infrastructure is certainly different based on the scope of their respective uses. For example, transportation facilities and infrastructure are different from health.

There are several infrastructures that are observed through Google Earth, including a grocery store, Cikoang Mosque, SDN, and Traditional Institutions. This village is also facilitated with paved roads to be accessed by Cikoang Village residents.

The results of this building layout analysis are carried out by comparing the existing conditions in the research area with the direction of the Makassar City Building and Environmental Planning (RTBL) so that it can be seen how much mismatch of building layouts exist in this area. The river border owned by Cikoang Village is still not in accordance with the minimum standard of regulations, but researchers assume that this may be due to the influence of the natural conditions of Cikoang Village. The analysis of building layout presents data that the density level of Cikoang village is classified as medium. Plans for the development of residential areas with medium and low density include:

improving the quality of housing environment infrastructure;

improving the quality of housing for poor households;

determine KDB of at least 60% (sixty percent) in each housing area development; and

encourage the construction of infiltration wells and biopori. The data compared in table 2 shows that Cikoang Village meets the RTBL standard. The orientation of the building also faces the river and the road, resulting in a linear settlement pattern following the water line or known as a longitudinal pattern. The infrastructure facilities within the scope of the study are also considered quite appropriate and can adequately provide for the needs of the population.

The existence of rules for building coastal settlements can make settlements run in an orderly manner according to and in harmony with their environment. The results of the conclusions above, it is recommended that the river border can be re-examined and made according to standards so that unplanned events occur.

IV. Conclusion

The results of this building layout analysis are carried out by comparing the existing conditions in the research area with the direction of the Makassar City Building and Environmental Planning (RTBL) so that it can be seen how much mismatch of building layouts exist in this area. The river border owned by Cikoang Village is still not in accordance with the minimum standard of regulations, but researchers assume that this may be due to the influence of the natural conditions of Cikoang Village. The analysis of building layout presents data that the density level of Cikoang village is classified as medium. Plans for the development of residential areas with medium and low density include:

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The existence of rules for building coastal settlements can make settlements run in an orderly manner according to and in harmony with their environment. The results of the conclusions above, it is recommended that the river border can be re-examined and made according to the standard so that unplanned events do not occur. The results of field measurements prove that Cikoang Village does not have the minimum required river border, but the building layout is in accordance with RTBL directions. The settlement orientation pattern is linear and the infrastructure facilities in Cikoang Village are sufficient and can serve the surrounding population.

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