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# Revised Form Of Settlement From The Aspect Of Waterfront Sustainability In Kampung Mariso And Kampung Pahandut, Indonesia

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## ABSTRACT

This study aims to describe waterfront settlement form in Mariso and Pahandut which are situated on the edge of the water. The study was conducted using analytical methods to analyze morphological compaction process through the two settlements. Observations and interviews from several sources as a reference for strengthening the findings. These results indicate that the first form is an amalgamation of settlements Mariso clumped pattern, elongated and spread the formed due to the accumulation of the sea into the settlements, while the form of shaped Pahandut settlement spread. Second, settlement patterns formed by these environmental conditions have affected the water's edge and affect aspects of the movement in the housing area. Third, the settlement grew spontaneously without the deliberate so as not to pay attention to the concept of sustainable impact on the environmental damage the water's edge.
**KEYWORDS**: settlements' shape, waterfront environment, sustainable.

## I. INTRODUCTION

Kampung Mariso and Kampung Pahandut settlements are located on the coast and rivers where most of its territory is the territorial waters. The strategic location have led the growth rate of high density of the settlement. The development of these settlements as the area that is located on the banks of the water will cause various effects on the environment and surrounding waterfront. One is the emergence of a new settlement which grew spontaneously along the coast and rivers due to increased demand for land and traditions of local people who love to build a house close to the family (1). Settlement is then expanded and grown to unmanageable along the coast and rivers, filling the empty spaces, resulting in changing the shape of the edge of the water, coastal and river areas will lose function and decreased quality of its environment.

According to Soeriatmadja (20) in the Spatial Planning Guidelines and Area Development, the basic definition of sustainable development put forward by the commission Brundlandt is building to meet the needs of human life now without ignoring the future needs of human life. Initial understanding was developed by UNEP to "improve the quality of human life while maintaining the carrying capacity of natural resources and environment of the ecosystems that sustain it". The Rio Conference on Sustainable Cities Agenda 21 states that showed the unit to observe the principles of sustainable development, urban ecology, which seeks to combine the economic, environmental, and urban culture.

One opinion says that sustainable development is the progress resulting from the interaction of environmental aspects, economic and social dimension of politics in such a way each of the patterns of changes in human activities to ensure the lives of people living in the present and future, and is accompanied access to socio-economic development without exceeding the threshold of the environment (3). Sustainable development linking the three main aspects: economic, social, and environmental.

Sustainable city is a city in which to have the concept of development that can meet the needs of life for the present, but also not ignoring the needs in the future. Sustainability is intended to improve the quality of life while maintaining the ability and carrying capacity of existing resources. Sustainability was done on the physical aspects such as the environment, and other non-physical aspects such as economic, social, and cultural aspects. In this discussion, application of the concept of sustainable cities should be tailored to the physical and non physical characteristics of a country or region. It is intended that the results achieved from the concept of sustainability can be optimized.

Form of a settlement is determined by physical force in this case environmental factors (4) and non-physical force in this society socio cultural factors (5). The spatial patterns of water edge settlement has different forms according to the ecological characteristics and processes of growth. Spatial patterns of settlement edge of the water generally form clumped patterns, flow patterns, the pattern of the estuary, the pattern of spread and elongated pattern (6,7,8,9). Below shows some sketches of coastal spatial pattern:

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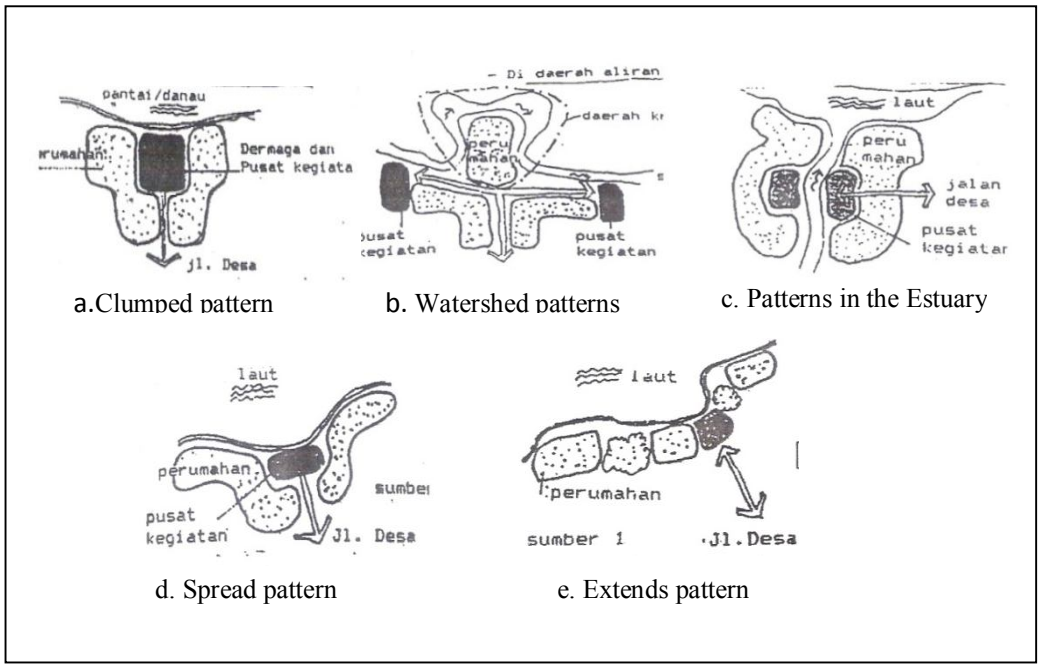



a.Clumped pattern b. Watershed patterns c. Patterns in the Estuary

d. Spread pattern e. Extends pattern

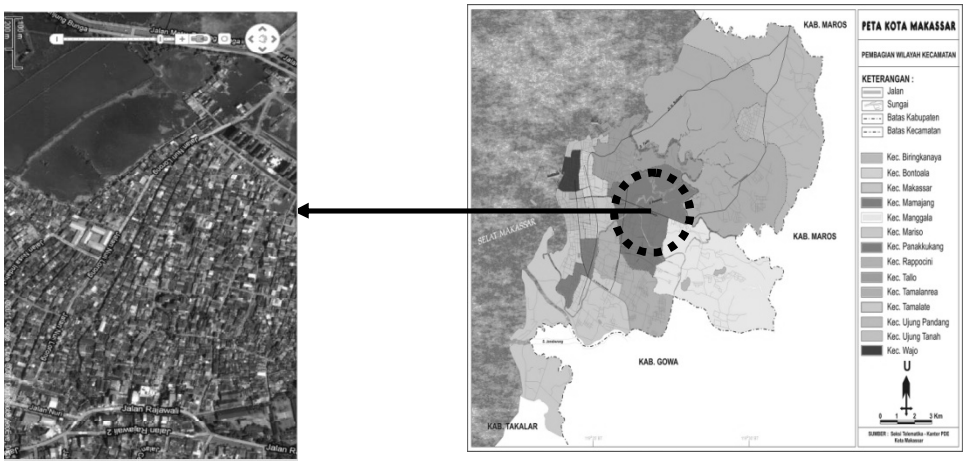
Figure 1: Spatial Pattern Analysis of Edge Water Settlements (6,7,8,9)

From the picture sketched above shows that there are four essential elements that exist in coastal settlements which are: housing (cluster of houses), activity centers, roads and water as an element forming the environment. From the above description it can be concluded that the settlements in coastal areas should be an integral part and not in conflict with coastal processes and ecological phenomena as a whole, which requires the spatial arrangement settlements in coastal areas in an integrated environmentally sound.

By looking at the condition of Kampung Mariso and Kampung Pahandut, we need a study that can give you an idea of what the waterfront settlements are sustainable so that it can become a reference in the arrangement of the waterfront neighborhoods. The results of this study is useful as the development of knowledge, especially knowledge of the architectural arrangement of settlements that adapt to the waterfront environment.

## II. RESEARCH METHODOLOGY

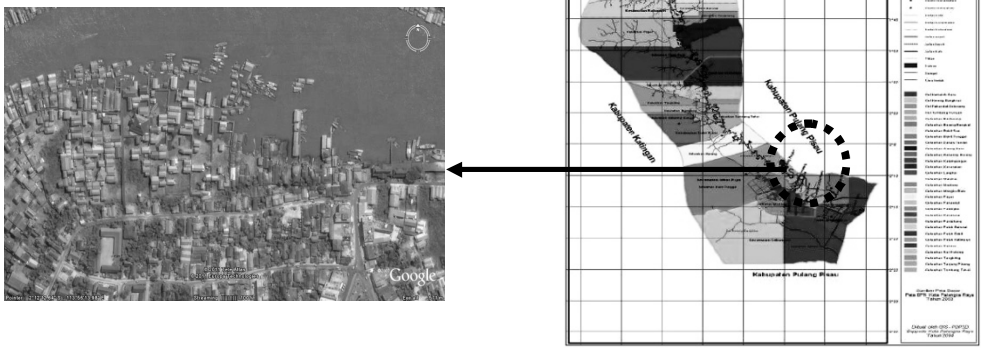
This study uses morphological analysis to analyze typhological-development and solidification process of settlement through the map, observations and interviews from several sources. Typhological-morphological analysis is used to analyze the development of settlements. Typhological-morphological analysis focused on the network structure of urban space (urban tissue) and the pattern of growth and change (pattern of growth and change) (10). Typhological-morphological approach for analysis technique, data / information is not collected as a separate stage of the analysis stage, but done in an iterative process that gathered in a certain time (10). History of urban development in the form of source text / written, drawings or maps, including data / other supporting information obtained from respondents. The study also will analyze whether the settlement is formed in accordance with the concept of sustainable development. This study focused on Kampung Mariso Makassar City and Kampung Pahandut Palangkaraya City which is the coastal settlements and the river.




Mariso Map (Google Earth, 12 Juni

The city of Makassar Map (Syarif, 2007)

Figure 2: Location Kampung Mariso Research (Sharif, 2010)




Pahandut Map (source: Google, 2004)

The city of Palangka Raya Map

Figure 3: Location Kampung Pahandut Research (Google, 2004)

## III. RESULTS AND DISCUSSION

Based on the analysis can be explained that the conditions of settlement in Mariso and Pahandut have much in common despite having different characteristics. In addition, there are also differences that are affected by several aspects. More clearly be seen in the following presentation of physical condition of Kampung Mariso and Kampung Pahandut.

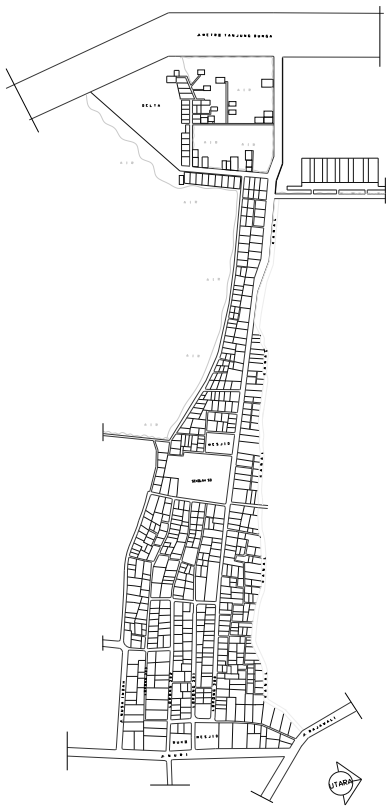
**First aspect**, aspects of sustainability (ecological, social and economic)

| KAMPUNG MARISO SETTLEMENT | KAMPUNG PAHANDUT SETTLEMENT |
|---|---|
|  |  |
| - From the ecological aspects of environmental degradation has occurred due to the water's edge and the loss of mangrove forests due to accumulation of marine sediment.<br>- From the social aspect, there is a change of lifestyle into the kinship system to individual villages. Seen by the division of land plots and boundaries.<br>- Economically, the existing road transport have greatly facilitated the movement of people and the achievement of city facilities that affect the economic movement of people Mariso. Seen a lot of people who open a business and profession of fishermen to switch to self-employed | - The process of making the width of the river siltation is reduced, it leads to changes in ecology. The process of siltation caused by natural conditions and human activities.<br>- The migrants who used to make a homogeneous region (only the Dayak Ngaju) to be heterogeneous. It is making changes and socio-cultural mixing. Existing conditions no longer reflect an area that has a special characteristic.<br>- Easy road access and areas close to markets make the economy move people, many of which opens the fish farming and open shop. But it also led to many aspects of uncontrolled immigrants come in and build houses so that the more disordered |

***Seconf aspect***, physical Condition and Population Characteristics

| KAMPUNG MARISO SETTLEMENT | KAMPUNG PAHANDUT SETTLEMENT |
|---|---|
|  |  |
| - Located on the bay shore Losari<br>- The contours of the land is relatively flat<br>- There was a land that hoarding ocean marine areas has narrowed<br>- The majority of indigenous people who adhered to Makassar kinship system. In addition there are the immigrants who worked around the settlements | - Located on the banks of the River Kahayan<br>- The land is relatively flat with a slight contour.<br>- The land is tidal land<br>- Heterogeneous population that is as indigenous Dayak Ngaju, other Dayak tribes, Banjar, Java, etc.<br>- The average population is related |

***Third aspect,*** settlement patterns and development

| KAMPUNG MARISO SETTLEMENT | KAMPUNG PAHANDUT SETTLEMENT |
|---|---|
|  |  |
| - Shaped clumped, elongated and spread out on the water, with the development and solidification starts from east to west or from the mainland towards the sea<br>- Emerging new settlements in spontaneity, getting to the beach more disordered, starting with building a house on the water with bamboo dike access road, then a process of accumulation of the sea that turned into a house on the mainland.<br>- Some of the buildings located above the water line and do not pay attention to coastal border<br>- Composition of the meeting house and lot aisle formed. | - Form elongated settlement following the flow of the river with the development of the river to the land caused by the silting of river conditions that have<br>- New houses grew on land or empty spaces both located on the banks of the river or on the water creates a condition of irregular<br>- The composition of the adjacent houses and streets form a catwalk environment. |

***Fourth aspect***, conditions of Infrastructure and Development

| KAMPUNG MARISO SETTLEMENT | KAMPUNG PAHANDUT SETTLEMENT |
|---|---|
|  |  |
|  |  |
|  |  |
| - The settlement can be reached by road through the neighborhood and can canoe from the sea<br>- Originally a connecting road between the houses made of bamboo hedge, then the accumulation of a dirt road, and the government built the road paving block<br>- Road environment is formed following the pattern of existing roads.<br>- Formed the aisles as the entrance to the homes that are not oriented to the street environment<br>The existence of roads in the metro west cape flowers will facilitate the achievement to the city center | - The settlement can be reached easily by road, although there are those who use the boat but not much<br>- The main road was originally a dirt road which is then hardened with asphalt. Later in the neighborhood was built many roads are made of a wooden footbridge. The streets are wide enough so that the catwalk can be passed motorcycle<br>- The road to the settlement makes it easier access anywhere especially where villages are near the center of the crowd (the market) |

Based on the findings obtained by analyzing the growth of settlements that have influenced changes in the shoreline and riverbank settlements where growth leads to the waters. Settlement patterns that occur in the neighborhood and village Pahandut and Mariso strongly influenced by social and cultural conditions in this system of kinship and the influence of immigrant communities as well as the physical condition of the environment. Picture of settlement patterns in settlements Pahandut and Mariso are as follows:

***First***, home development pattern that is formed as follows:

- In Mariso settlement houses grew in a disorganized, spread and fill the space that is empty of water land, which was originally the house was on water and then a process of accumulation. While in the village houses Pahandut grow in a disorganized, spread and fill in the blank space following the physical condition of the environment without making changes to the conditions of tidal land.


Condition of Kampung Mariso Condition of Kampung Pahandut

- In Mariso settlement houses grew with the composition of the house lined up a meeting between the buildings and turned to each other with each other by the orientation of the streets and alleys as the main access. While in the village of stilt houses lining Pahandut line of sight to follow the main street environment, while the floating houses along grown in the river to fill the empty spaces that remain.


Condition of Kampung Mariso Condition of Kampung Pahandut

- Growth of the house overlooking the beach and the river, the houses are getting into the water the more disorganized.


Condition of Kampung Mariso Condition of Kampung Pahandut

***Second***, street pattern that is formed as follows:

- The growth pattern of settlement Mariso follow the path starts from the mainland to the beach. While in the village street Pahandut growth pattern starting from the mainland towards the direction of the river following the directions along the river.
- In Mariso settlement pattern is formed by the street environment in which the dike was originally made of bamboo on the water, then dumped into a dirt road and by the local government turned into paving blocks that functioned as an access link. While at Kampung Pahandut pattern formed by the road environment.

Condition of Kampung Mariso

Condition of Kampung Pahandut

Picture of sustainability (sustainable) on settlement in Kampung Pahandut and Mariso reviewed from three aspects (economic, social, cultural and environmental):

Economically, the infrastructure, especially roads and public transportation is to support the economy. Locations that provide economic benefits increasingly drive the economy. Residential location close to where the work is supported by the current transport is an attraction Mariso. The existence of the river in Kampung Pahandut makes the cultivation of fish in cages to grow. Community engaged in more and more. Marketing is not just in markets close to home but also other markets, including supply for restaurants / restaurant / diner and hotel in the city of Palangkaraya. It is also supported by an adequate road access. The existence of the port is also creating jobs for workers haul the goods. As long as there are rivers and harbors the economic operation of Kampung Pahandut still be promising for long periods of time. Socially, culturally, current conditions do not reflect the culture of river and coastal culture. Cultural reflection of the coastal rivers' life and physical appearance of the house forms from the river, in fact, in harmony with nature. The initial conditions can be explaine as followes. The appearance of houses and floating-shaped stage, the orientation towards the water, and forms of transport in the environment of the street is a catwalk cultural characteristics of the river and the coast. Current conditions was transformed, the land on the edge of the water dumped / covering the streets were paved / concrete pile foundation soil to make the waterfront area is no different than the mainland. In addition to environmental changes in the presence of siltation and sedimentation also influence the changes. The presence of different cultures immigrant also begin to contribute. Development is going to have implications for social change and cultural values that form the new. Only changes that give a negative value is more dominant in the region.

In ecology / environment, the conditions present in the settlements Pahandut and Mariso and not worry about sustainability because it has been damaging to the environment due to human activities and natural influences in this silting. In the case of Mariso, obvious damage accumulation in coastal conditions. Stock piling activities not only by society but also by local governments. While the presence of siltation in the river narrows Pahandut make wide, many of tidal land being turned into land. This condition coupled with the behavior of people who are not disciplined to keep the environment clean. There are still a lot of garbage / waste dumped into the sea and rivers. In Pahandut, river water still used for daily life of society.

Looking at the above three aspects clearly increased economic activity actually makes other aspects of the socio-cultural and increasingly deteriorating environment. The concept of sustainability can only succeed in the economy. Lack of government's role was made the region grow irregularly. Omission of the behavior of the people by the government and reinforced by the concept of development that seemed to support the planned changes arbitrarily without in both areas, making the condition more and more away from the concept of sustainability.

## IV. CONCLUSIONS

Based on the research note that the form of settlements Pahandut and Mariso an amalgamation of patterns clustered, elongated and spread that occurs spontaneously by the local community. Form of settlement that occurred in Mariso and Pahandut strongly influenced by environmental conditions and the waterfront social and cultural conditions. The emergence of new settlements in Mariso and Pahandut has transformed the waterfront area. New settlements developed in the direction of the water that do not pay attention to the policy of restructuring the water's edge. As a consequence, the settlement becomes irregular, dense and environmentally damaging water's edge, leading to settlements that grew increasingly distant from the concept of sustainability. From these results, further research is needed to provide an overview of the typology of the water's edge from the standpoint of sociology, anthropology, economics and research on the concept of structuring the waterfront in accordance with the characteristics of the environment so as to provide a sustainable concept that could benefit the community waterfront and local governments.

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