

# The Way Of Living Effects In Water-Edge Settlement Transformation, A Case Study For Mariso Village And Pahandut Village, Indonesia

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## ABSTRACT

This study aimed to describe the change of shape in water-edge settlement which located in Mariso village and Pahandut village as settlements are situated on the edge of the water. This study will use a method of *synchronic Reading* to read the growth form of the water-edge settlements and use kinship diagram analysis to analyze the transformation of the house because of kinship based on observations and interviews from several sources. These results indicate that the *first*, growth pattern of Mariso settlement is linear form which evolved from the mainland to the shore, while the growth pattern of Pahandut settlement is parallel that follow the river form. *Secondly*, cultural living which is want to close with the family causing the appearance of new settlements is heading towards the coast and rivers.

**Key words :** form of settlements, water-edge, the way of living.

## I. INTRODUCTION

Mariso village and Pahandut village is a settlement which located on the coast and rivers where most of its territory is the territorial waters. These settlements continue to grow, new settlements that grew up spontaneously along the coast and rivers due to increased demand for land. Settlement is then expanded and uncontrolled along the coast and rivers, filling the empty spaces, and resulting in changing the shape of the water-edge area.

Form of a settlement is determined by physical force in this case environmental factors (1) and non-physical force in this society sociocultural factors (2). Neighborhood is a collection of various components which are a combination of site, event, and sign. Roads, open space, building type, and the other physical elements on the site as a whole is characteristic of a neighborhood (3). By looking at the settlement as a system of containers (physical) and the contents of the system (non-physical human beings and society), so the morphology of the settlement is a transformation settlement that involves in the physical elements of nature and human beings, both individually and community groups and all activities of life.

Understanding of the morphology of some settlements can be explained that the morphology of the waters-edge settlements is the form process of the settlement as well as changes and developments within a certain time at a water-edge neighborhood. Morphology in the context of neighborhoods linking between the growth process and the formation of the physical elements with non-physical elements that form the background for the realization of the space.

### 1.1. Cultural Living

Phenomenological views of believing the presence of the relationship between the physical form of the gestalt or ideas contained in the human mind, which would then form the identity (4). Shelter and settlements as a product of human culture can not be separated from those influences. Occupancy not just as a mere means of life, but rather a living process, namely the presence of humans as occupants in creating living spaces in homes and surrounding environment. Shelter and settlement is the mediator between humans and the environment, the transformation from one to the other or form a relationship between them (5).

Values completely occupy the main place in the residential design process, so that the behavior of occupants, desires and needs of residents is that largely determine the quality and form of housing and the environment (6). Ardian further states that the occupancy is not just dead things, not just shelter, but rather a living process, so that residents will find themselves, and can inhabit well and at home. Therefore, the occupancy can be expressed well when linked with the human inhabitants as well as to accommodate the dynamics of human life is multi dimensional.

Culture is a dwelling or residence as a residence that has more meaning than just a form of buildings, building materials, the amount of energy released, the time and cost, but more than that is a very close relationship between occupancy and fundamental and human inhabitants, between the profane and the sacred,

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which includes the drama of life-all aspects of life for all residents: ideas, activities and artifacts produced. Culture is a living process of life and artifacts produced in a given place and inhabiting a physical expression of the activities carried out (7).

In any living stage of culture or the dynamics between people, dwelling in the form of buildings, residential environment and the activities of a particular cultural community. Dynamics as an integral part, which is based on something that emerged from the cultural community.

## **1.2. Process of The Water-Edge Settlements Forming**

Humans originally chose the location of residence at three places, namely in order to keep an eye on the surrounding hills, the valley so that was terlingkupi and meeting areas or coastal land and water (8). Waterfront area is selected so that people can be assured of clean water supply, and river / sea to transport infrastructure, the means to meet other humans. Waterfront area into the early dibukannya collective settlements and eventually developed into the city.

The basic theory about the birth and development of the city (urban morphogenesis theory) agree that the origin of a city is a living environment (neighborhood/ settlement) that continues to evolve from a simple pattern into a pattern of increasingly complex. In every stage of development of human settlements have always been the basic elements, namely the parts that are homogeneous, which became the central part, the part that has a special meaning and circulation routes (9). These elements include the nature, man, shell, and the network society.

In connection with the meeting of land and water, many large cities are built on the edge of the water as well as on the banks of the river, delta of the river, the lake, or beach which starts from a settlement. Settlement of old / old who grew up in the river was built in the direction of flow of the river (longitudinal follow the river home), no matter the direction of north, south, west, east (10). According Soesangobeng (1977) statements, there are several reasons for choosing the location of living around the coast, namely (11): first, accelerate and simplify traveling to the sea; second, as a reassurance at a time when a break; third, it's still pretty close to the mainland in order to access out to be easy. It added that settled on water-edge is a product of culture and adaptation in life, both in terms of aspects of life experience, social, economic, so that the water's edge shaped the patterns of relationships and social interaction.

Culture is related to the environment (12), in the sense that the environment can influence the culture of a group and vice versa cultural group can form a surrogate environment. An environment which can affect the culture of a group of humans is associated with the dominant natural factors and the source of the life of the group so that the natural environment has become his way of life. Coastal culture can be interpreted as a way of life of people residing near the water, making the waters as a way of life.

Coastal settlements are generally populated by people who have linkages with aquatic environments and their living from the waters such as fishermen and sailors. In accordance with their livelihoods, they will transform the daily activities of both physical and social. Physical factors will be reflected on the settlement pattern, building form, orientation, construction and building materials as well as complementary facilities settlements. While social factors will be reflected in the way of interacting with their peers and patterns of everyday life. In terms of culture and adaptation many settlements in coastal areas that grow and thrive because of kinship, especially people who edged pencahariaan as a fisherman. In coastal communities, kinship can be the deciding factor on the formation of coastal settlements, because it is associated with a form of social bonding, the rules of cultural nuances, as well as the nature of economic activity (13).

## **1.3. The Morphology Pattern of Water-Edge Area**

The spaces on the water-edge area is formed in accordance with the shape and morphology of the region. Morphological patterns are common on the water-edge (14), they are: linear pattern usually spreads and extends along the edge of the water such as coastal and river; radial pattern is the configuration space and its mass pattern of an area surrounding waters such as lakes and bays; concentric pattern is the development of a form that spreads in a linear radial toward the rear of the radial center, and ranch pattern formed if there are creeks and canals.

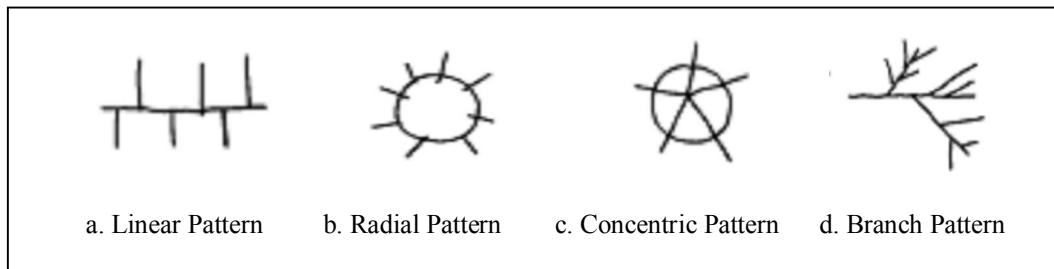


Figure 1:Common patterns of morphology in the Waterside area (Source: Rahman, 2006)

Patterns of mass and space in the zones that is located in the water-edge area should refer to and oriented toward the water. If this is not implemented then the area would lose its distinctive features and character as the water's edge. Zones in the region created by the water's edge is an area that has been met and berintegrasinya multiple functions into a single activity. In general, the zone is located directly adjacent to a major water authority has the functions of the main activities that are public so it can be accessed from all directions by everyone. After the main zone is formed then later built around the zones of smaller spaces that contain functions that support the main area or areas containing residential areas.

Circulation element road network is an important area. Circulation is the land used as an infrastructure link between the zones of the region and access to other areas. Circulation on the water-edge there are two types, namely the circulation of land and water circulation. Ideally both the circulation and has an extensive amount of the same magnitude. In addition, the arrangement of the water circulation in the area said to be good if the network path is straight and parallel to the patterned side of the waters. This arrangement makes it easy for everyone to enjoy the view towards the water. While the arrangement of the circulation of land adjacent to areas that do not result in any waters of orientation and loss of image of the edge of the water itself.

By looking at the condition of Mariso village and Pahandut village, we need a study that can give an idea of how changes in the shape of settlements according to the water-edge community living culture so that it can become a reference in the arrangement of the water-edge 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 water-edge environment.

## II. RESEARCH METHODOLOGY

This research methodology bases on the writer's book, entitled *Penelitian Arsitektur di Bidang Perumahan dan Permukiman* (15). It was followed a method of Loeckx's Synchronic Reading (16) to read the form and growth of the water-edge settlements, including kinship diagram analysis to analyze the transformation of the house as affected by kinship. However, this analysis based on observations and interviews from several sources. As additional information, synchronic reading technique used for reading or interpretation in synchronically, that is in the process of analysis to researchers 'sync' or harmonize the information obtained at the same time.

Further the author suggested, with a focus on analyzing and/or interpretation of the data presented in the display pictures, diagrams and sketches are grouped into four interrelated parts. The first part is an analysis of the data or the environment. The second part is building the data analysis, data visualization including socio-economic and cultural residents. The third part is an analysis and/or interpretation of the results of measurement of information/data that have special properties that served as a combination of related information to one or the other of the studied population (syntactic properties). The last part is to make the interpretation of the results of statistical processing. Of these two analytical techniques mentioned above are expected to be obtained findings about the shape of the settlement and its amendments (15).

Social data visualization is used to present occupants of the household social conditions presented in the form of image display. Information on the number of family members by gender and social status of each member of the family in the house occupied by the graphics. Social position is such as parents, children, law, and so forth. For this information includes a description of who the child in the family structure as a whole. The images will show a diagram which is the application of Levi-Strauss' structural analitical technique (17) to describe aspects of the kinship and / or family genealogy. The following section III will present the discussion in detailed.

Two case studies, the Mariso village, Makassar city and Pahandut village, Palangkaraya city which is the coastal and the river settlements chosed as the case of this study.

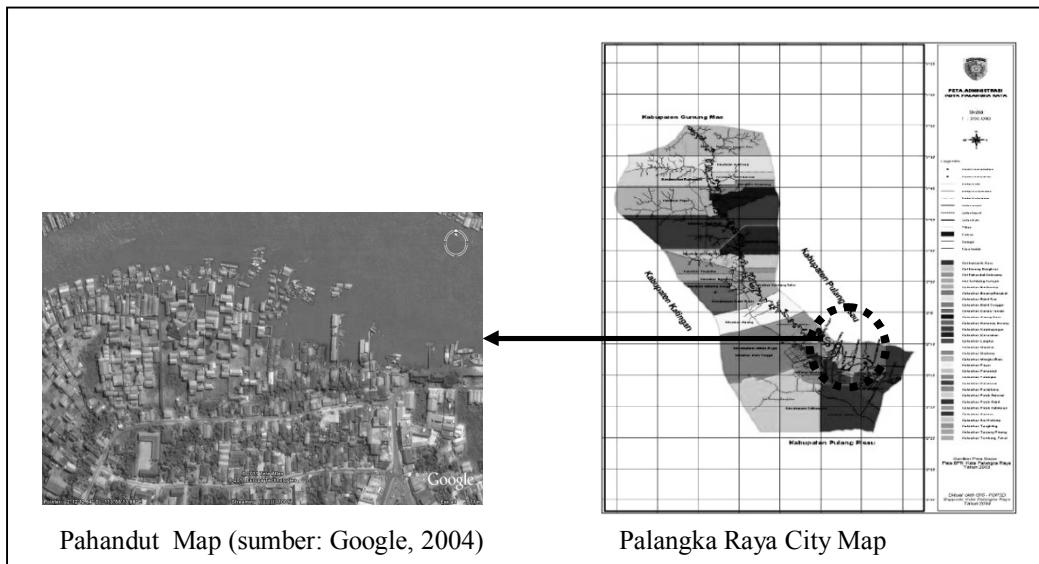


Figure 3: Location Kampung Pahandut Research (Google, 2004)

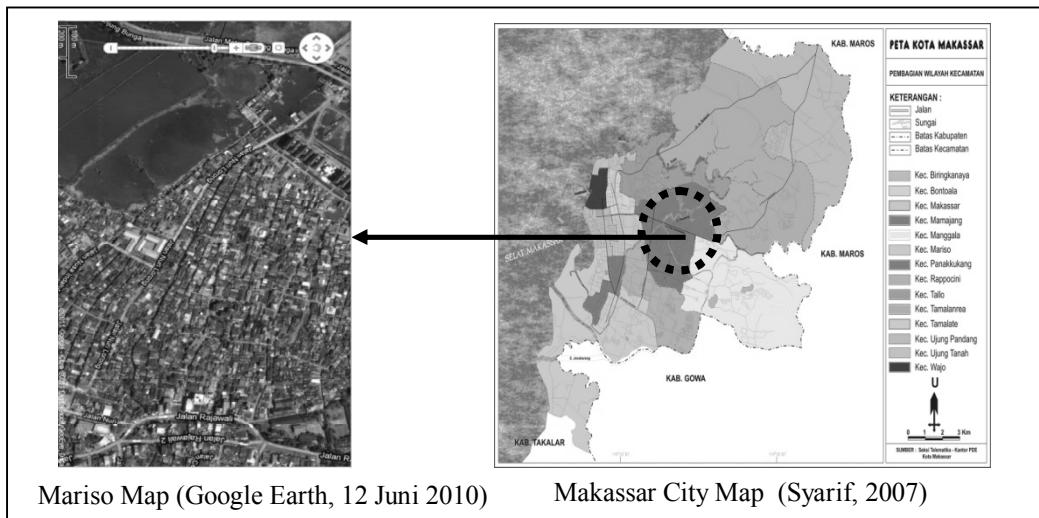


Figure 2: Location Kampung Mariso Research (Syarif, 2010)

### III. RESULTS AND DISCUSSION

#### 3.1. Mariso Settlement

##### 3.1.1. The Growth Conditions of Mariso Settlement

The total area of 20.4 ha Mariso region (18). Of all Mariso area consists of an area of 2.1 ha of water area that is part of the sea and ponds, while 18.3 ha is used for housing and amenities are in part a development of land that has been stockpiled by the local community.

Mariso settlements are settlements that developed as a result of accumulation of marine processes undertaken by local people to clear land for settlements. These settlements continue to grow, forming a new settlement on the shore and the coastline has changed. Mariso residential developments and changes coastlines starting from 2004, 2006 and 2011 can be seen in Figure 4.

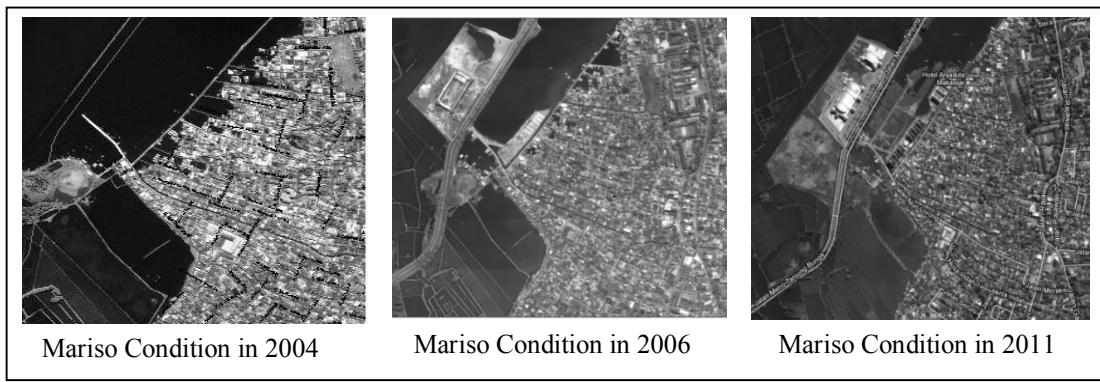


Figure 4: Development of Village Mariso (Source: Google Earth)

### 3.1.2. The Form of Mariso Settlement

The new settlement grew spontaneously on the water-edge Mariso have different shapes according to the growth of settlements, where the access road is an open space bond or connecting rooms. Mariso water-edge settlement patterns are linear shape extending from the mainland to the beach.

Initially grow houses spread over the water, then continue to develop following physical environmental conditions with growth of the settlements to the coast the more disorganized. In addition to lack of uniform mass of the building there is also happening density and distance between buildings that meeting. The emergence of new settlements with no attention to the coast line of demarcation within 100 meters (Presidential Decree 32, 1990).

Mariso settlements are generally populated by people who are still concerned that the system of kinship families who want to be close to the family caused the growth of new homes with the composition of a meeting house and form a tunnel. Land for a homestead should develop into tenements, narrow, tight and solid. No longer comfortable residential look for the house went dark and the heat caused by the lack of openings and vents, are not energy efficient due to the use of artificial lighting and even some groups air circulation home look shabby.

Pattern of changes in house form is also strongly influenced by the pattern of employment (livelihood) Mariso community. Where formerly the livelihoods of some of the population are fishermen and farmers turned to other work because of the size of the land for their livelihoods. So that the empty spaces that exist on below the house changed into a place of business.

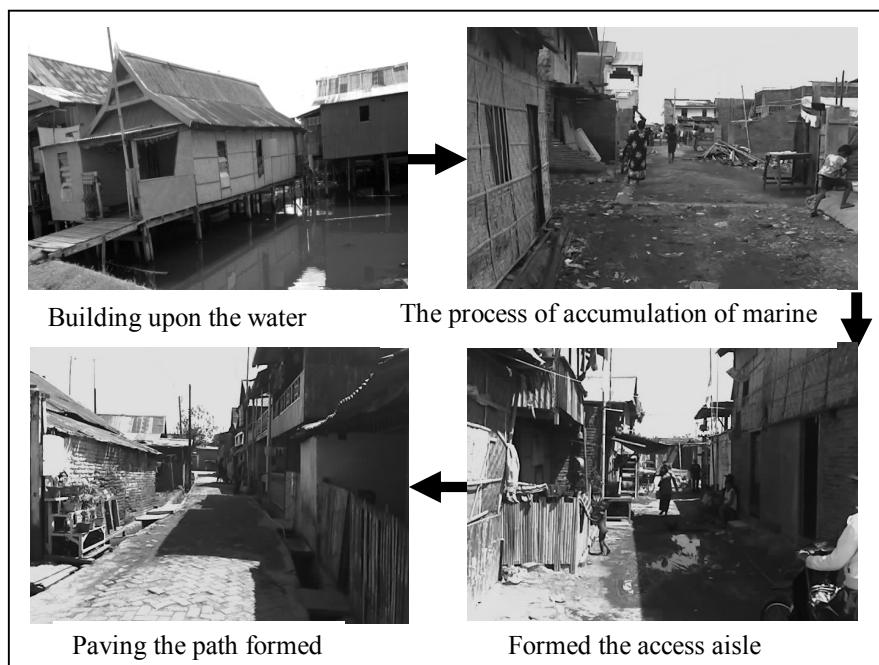


Figure 5: The phenomenon of formation of settlements in the Village Mariso (Source: Field

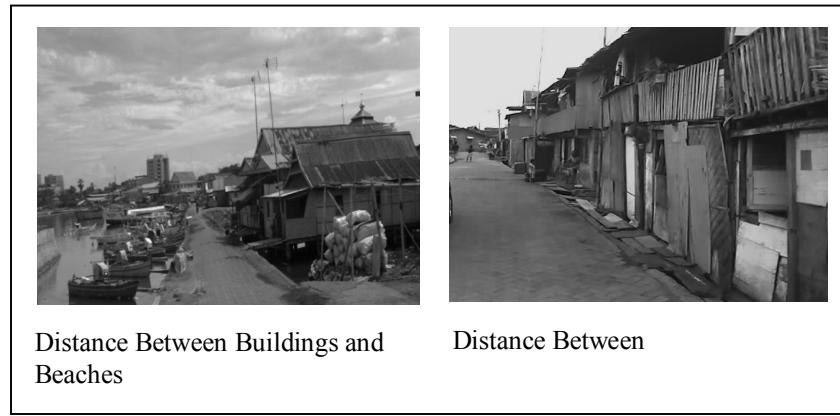


Figure 6: Distance between Buildings and the Beach (Source: Field Observation (2011)



Figure 7: Condition of the Stage House on Water (Source: Field observations, 2011)

### 3.1.3. Socio-Cultural Conditions of The Mariso Community

The composition of the groups formed on the house in the Mariso village strongly influenced by socio-cultural system of society in this regard is the tradition of fun together and close to the family or kinship system, which houses the core (parent) develop into family homes (child) and formed the core around the house as an access aisle. Spaces are still available as a vessel formed by spontaneous settlements without regard to the support of the environment used together well as access or for other functions. The emergence of groups of houses that lined the halls of the meeting and as a result of the local kinship system which causes the environment to a solid and growing up to the sea area.

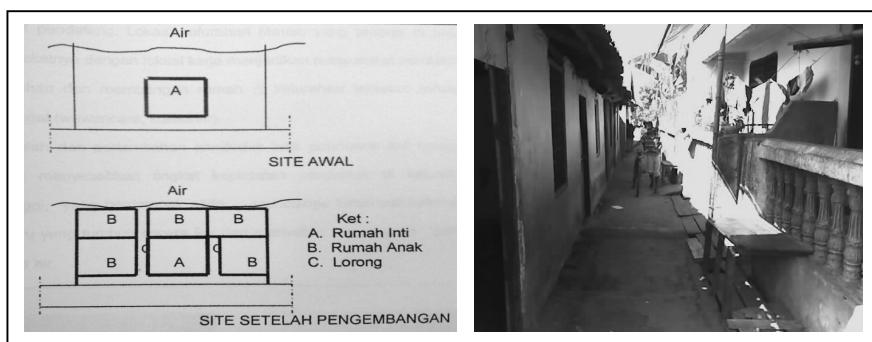


Figure 8: Analysis of the Generated Due Lorong Kinship (Syarif, 2010)

### 3.1.4. Mariso Settlement Transformation Analysis as affected by Kinship Factor

The following Figure 9: Transfiguration House Diagram for Kinship Factor shows the process of transformation analysis because of kinship factor.

Table 1 : Transfiguration House Diagram for Kinship Factor in Mariso Village

OBJECT	FAMILY STRUCTURE (KINSHIP DIAGRAM)	INITIAL FORM AND DEFORMATION OF HOUSE FORM
1st family DG MURI	<p>(1) THE MAIN HOUSE</p> <p>(3) BEHIND</p> <p>This first family consists of father and mother had 6 children consisting of 2 boys and 4 girls. Both boys then got married. Having been married then they should own their own homes. Then built two houses. The houses are located on a plot with his parents' home. Second row houses built in the back beside the main house and later formed the alley. These four girls stay at home parent.</p>	
2nd family DG MONE	<p>(1) THE MAIN HOUSE</p> <p>(2) SIDE</p> <p>(2) SIDE    3) BEHIND</p> <p>The second family consists of 1 boy and 1 girl. Both boy and girl then got married. The girl follow her husband, while the boy built the house in the back beside the main house. Then the boy have 2 boys and got married. They built the house, one row built beside home parent and the second row in the behind. All of the house are in the one plot of the land.</p>	
3rd family HANAFIA	<p>(1) THE MAIN HOUSE</p> <p>(2) BEHIND</p> <p>(3) BEHIND    4) BEHIND    5) BEHIND    6) BEHIND</p> <p>In the third family, have 6 children consisting of five boys and three girls. Two daughters and one son-lai man not married and still living with his parents. While the 4 boys and 1 girl had been married. These four boys who are married and built a house a lot with his parents' home. The position of the houses on the left side and behind the main house.</p>	

Legend:

- △ = label for men
- = label for women
- + = bonding relationship of husband and wife
- = descendant of a line indicates
- [dashed box] = The Main House
- [solid box] = Additional Home

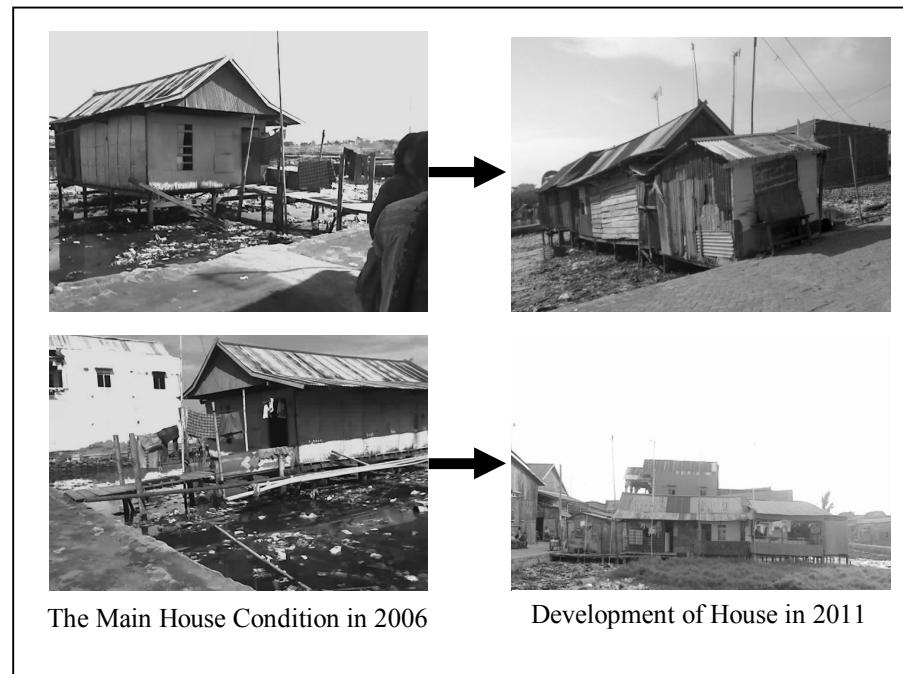


Figure 9: Development of House Because as affected by Kinship Factors

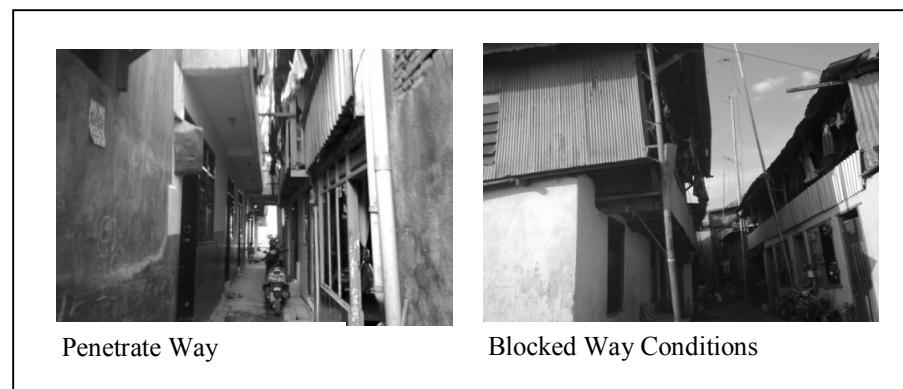
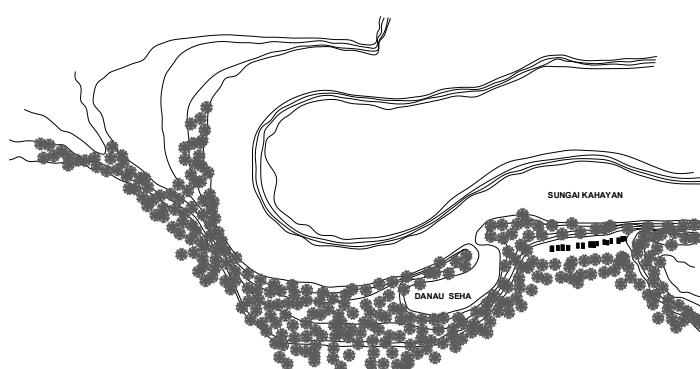


Figure 10 : Gangway is Shaped as affected by Kinship Factor

### 3.2. Pahandut Settlement

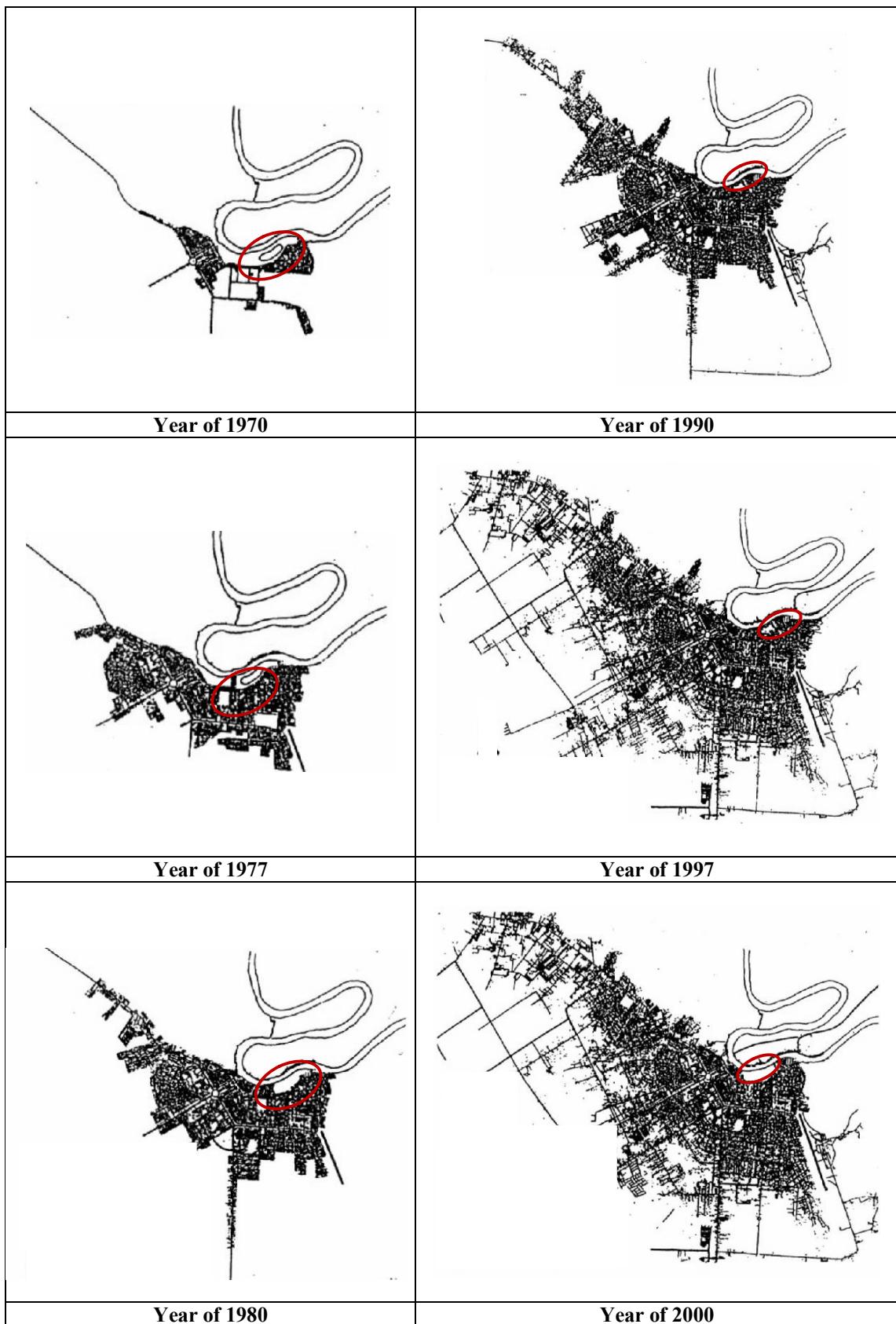
#### 3.2.1. Growth Conditions of Pahandut Settlement



Estimates of Pahandut Village Origins (before 1957)

An area of sub district Pahandut is 9,5 km<sup>2</sup> or 0,35% of Palangka Raya City (19). The growth of Pahandut village is inseparable from the growth of Palangka Raya city as a whole. Pahandut village is the forerunner of the Palangka Raya city as the capital of Central Kalimantan Province.

The development of the city with the Pahandut village inside can be seen in the growth's city on the Figure 11 below.



O Pahandut Village

Figure 11: Schematic of Palangkaraya City's Growth

### 3.2.2. The Form of Pahandut Settlement

It is estimated that there are houses in the Pahandut village is a longhouse-shaped (*huma betang*) or big house (*huma hai*). In its growth turned into single houses in the form of houses on stilts, floating houses (*huma lanting*) and regular house (ground).

The pattern of settlement in Pahandut village is beginning with an orientation parallel to the river overlooking the river. In its development, settlement patterns are changing. There are houses overlooking the river, there are no houses facing the river where the houses facing the street are made later. The road is the main road into the village of paved roads, but it is a neighborhood walk the plank road and concrete pavement. The situation is made a condition of irregular settlements.

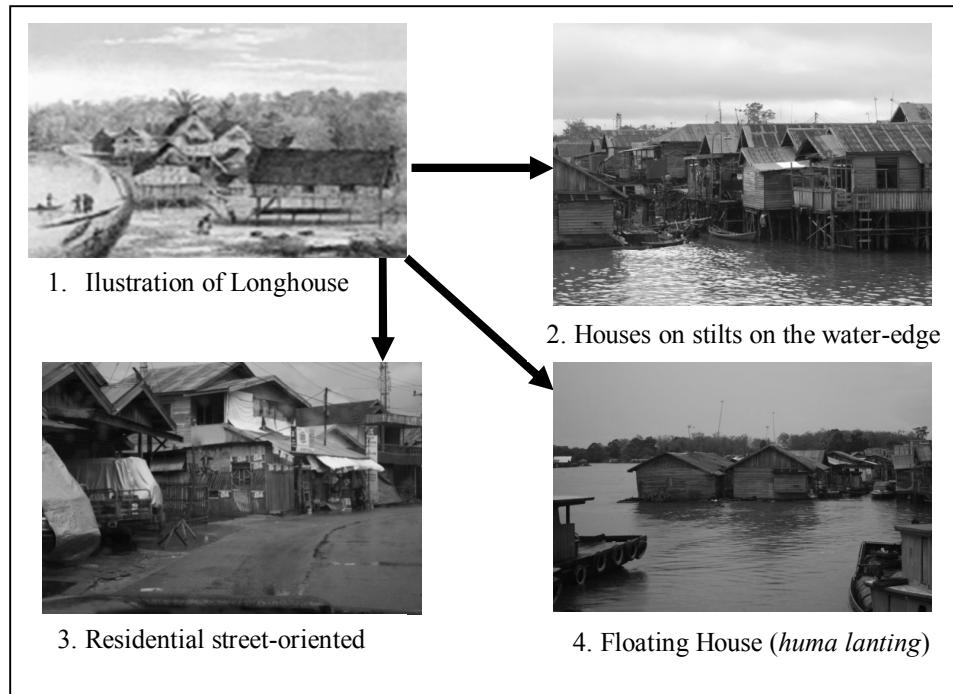


Figure 12: The Phenomenon of Residential Development / Changes in the Pahandut Village

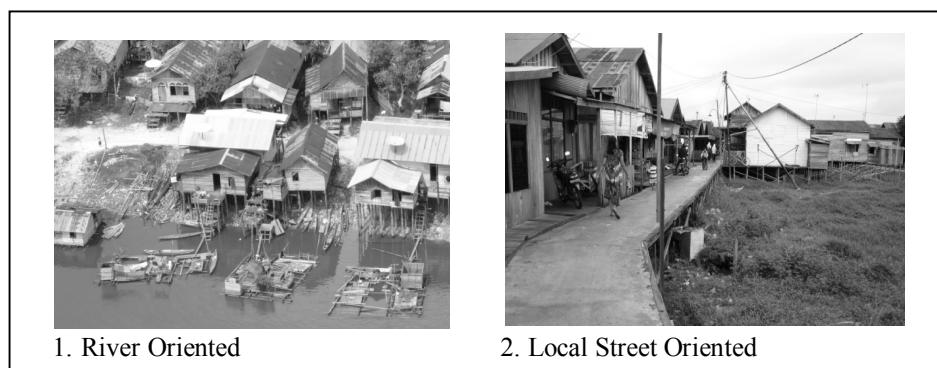


Figure 13: Orientation House in Pahandut Village

Form of the houses in Pahandut Village there are 3 kinds of houses on stilts, floating houses, and regular houses (ground). Houses on stilts above the tidal land, a house floating in the water / river while the ordinary house is above ground cooked (*Uruk*). The house was originally used to form the stage was later changed because of land conditions then no longer have ups and downs.

Form a second-largest afloat, and even more newcomers chose to float rather than a native house. This is possible because immigrants take advantage of his home for fish culture in cages

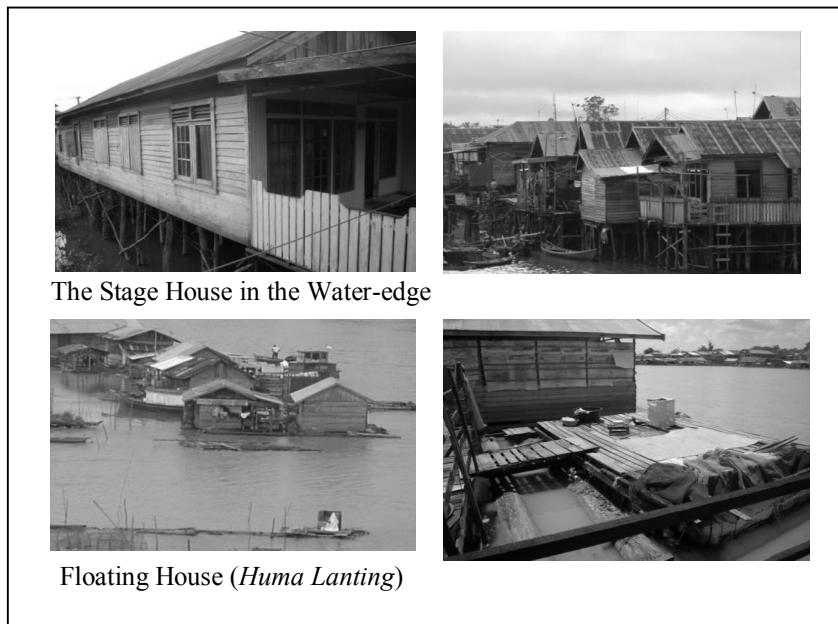


Figure 15: Forms House in Pahandut Village

### 3.2.3. Socio-Culture Conditions in Pahandut Community

Pahandut village in his native is the face of a very traditional Dayak village, its location on the edge of the river which forming Pahandut face in such a way, there is an established residential follows the river and also stood on the cliffs that follow the curve of the cliff houses of the river, a very high population of social relations, because it is still bound by the majority of the tribal elements of the Dayak tribe Ngaju, the familial relationship is still very closely intertwined, whereas livelihood is conducted at the beginning of farming, hunting and gardening (20). Influx of immigrants in Kampung Pahandut and the influences of modernity as the development of city living Palangkaraya affect the Dayak Ngaju culture which in the beginning of this village there lived in a mansion (Old field for dry rice cultivation), this time because of the need for residential spaces more so that the Dayak Ngaju community live in single-occupancy dwelling. Current unit Pahandut settlement is part of the Dayak Ngaju people and some are migrants, among others, Banjar, Java, and other Dayak tribes, so many newcomers blend with the natives.

Community to obtain land for housing comes from inheritance, purchase and lease. Occupancy beginning in the inheritance of land consisting of one house only later developed into several houses. The houses that came later inhabited by relatives of residents beginning. Relatives include children, siblings and other relatives. There is also then sold some of the land to others who are usually immigrants. In addition to buying, there are also immigrants who rent their land and homes of local residents. Migrants residing in this village because of economic reasons, namely to close the business places such as opening a store, transport workers and fish farming. Form of the existing houses in Pahandut village largely shaped stage. This is because the condition of land in the form of tidal land. If the condition of the river receded, the house is located on the banks of the river. Whereas if the condition of the tidal rivers are home on the water. There was also a form of floating homes and regular home (land). Ordinary home (land) there is actually a house on stilts in the first place. This condition is caused by the condition of land that has not experienced a backfill or tidal land again.



Figure 16 House with Local Street Oriented (Changes Due To the Footbridge)

Table 1 : Transfiguration House Diagram for Kinship Factor in Pahandut Village

OBJECT	FAMILY STRUCTURE (KINSHIP DIAGRAM)	INITIAL FORM AND DEFORMATION OF HOUSE FORM
1. Segah	<p>(1) THE MAIN HOUSE</p> <p>(2) SIDE (3) BEHIND (4) BEHIND</p> <p>In the first family, have 3 boys and 2 girls. All children are married. Daughters out of the house to follow her husband. While the three boys built a house adjacent to his parents' home. The houses are located on the side and back of his parents' house. The whole house has a distance, not attached and there are separated by a street walk. Orientation of the houses on the road leading to the catwalk.</p>	<p>AIR</p> <p>RUMAH 1</p> <p>JALAN LINGKUNGAN</p> <p>DENAH AWAL</p> <p>RUMAH 4</p> <p>RUMAH 3</p> <p>RUMAH 2</p> <p>RUMAH 1</p> <p>JALAN LINGKUNGAN</p> <p>DENAH PERUBAHAN</p>
2. Berti	<p>(1) THE MAIN HOUSE</p> <p>(2) LEFT (3) RIGHT</p> <p>In the second family has 4 boys and 1 girl. Children who remain unmarried with her parents who were married while building a house adjacent to his parents. The houses are located next to his parents house and orientation of the house facing the street environment.</p>	<p>AIR</p> <p>RUMAH 1</p> <p>JALAN LINGKUNGAN</p> <p>RUMAH 2</p> <p>RUMAH 1</p> <p>RUMAH 3</p> <p>AIR</p> <p>JALAN LINGKUNGAN</p> <p>DENAH PERUBAHAN</p>

Legend:

- $\Delta$  = label for men
- $\circ$  = label for women
- $+$  = bonding relationship of husband and wife
- $-$  = descendant of a line indicates
- The Main House
- Additional Home

#### IV. CONCLUSIONS

Based on this research note that the pattern of the growth Mariso settlement is linear form that evolved from the mainland to the shore. While the growth pattern of Pahandut settlement is parallel form the shape of the river. Form of settlement that occurs is strongly influenced by environmental conditions and the waterfront social and cultural conditions. Living in this culture want to close with the family led to the emergence of new settlements is heading towards the coast and rivers. The new settlement has transformed the waterfront areas, coastal areas and rivers became solid and has changed the coastline and rivers. Socially and culturally, current conditions do not reflect the culture of river and coastal culture. Cultural reflection of the coastal rivers and physically visible from the house forms in harmony with nature. The initial conditions such as 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 have changed, 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. Presence of immigrants of different cultures to the public beginning also 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. Neighborhood is strongly influenced by socio-cultural character of the local community and environmental conditions, as well as the

social conditions of the water's edge. Therefore, the government in managing and developing residential area should be able to consider those factors. It needs for further research on the settlements on the edge of another water by taking a comparison of this study so that it can be transferred or applied to other circumstances, a phenomenon similar to the location of research has been done.

## ACKNOWLEDGEMENTS

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