

IDENTIFICATION OF URBAN SPACE OF RIVERSIDE SETTLEMENT, CASE STUDY : 3-4 ULU PALEMBANG

By Tuter Lusetyowati

IDENTIFICATION OF URBAN SPACE OF RIVERSIDE SETTLEMENT, CASE STUDY : 3-4 ULU PALEMBANG

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ABSTRACT

Riverside settlement has a unique characteristic, because most of people activities are conducted on the wetland. As traditional settlement, this settlement grew naturally, without changed the natural environment. In traditional settlements, the development of urban fabric is unplanned and/or spontaneous. The development has been occurring interactions between people and their environment over decades and centuries. Building and urban public spaces were subject to continuous changes and transformations that were undertaken by users often in the absence of intervention of public authorities. According to the urban spaces, the people needs of urban spaces in the settlement are similar with in the dryland settlement. The research question is what public spaces are there in riverside settlements? This study will identify the types and usages of urban spaces in riverside settlement, particularly in 3-4 Ulu Palembang, where the influence of the watershed is still visible. The research method is case study method include field observation and interview with residents. The results show that there are some types and usage of urban public space in the riverside settlement that have distinctive characteristics. Limitations of dry land make some urban public spaces are different than in the dry land settlement. Identification of urban space in the riverside settlement is important into consideration to set up zoning regulations.

Keywords: riverside settlement, urban space, wetland, zoning regulation

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1. INTRODUCTION

Urban space can be described as external space in town. It is seen as open space for movement in open air, with public, semipublic and private zones. The concept of urban space has been elaborated as space between buildings in towns and other localities. According Shirvanian (1985) and Cuthbert (2007), there are several physical elements forming the city include land use city, building form and massing, circulation and parking, open space and pedestrian ways.

The physical space is formed as a relationship between various kinds of objects and humans apart in a space. This conceptual emphasis on the interdependence among others (Rapoport, 1977): (1) Process which specializes activity and functional relationships in a region; (2) The physical process that address the need for space such as form, shelter, transportation and communications; and (3) The process of creation and integration space between different parts, which placed variety activities at the space that contains variety resources.

Palembang municipality is divided into two parts by the Musi River, namely Seberang Ulu and Seberang Ilir. Seberang Ulu has a flat topography and below the maximum high-water marks of the Musi River, but some area has been reclaimed for the new building.

Kampung 3-4 is located in Seberang Ulu I subdistrict, with total area of 301 Ha. Total population is around 20.903 people with 3.083 poor household. Most of the residents earn money as labours, employees and traders. Kampung 3-4 Ulu located along the riverbanks that formerly as the main urban transportation. The buiding forms are stilt or raft houses which influenced by tide water. These stilt buildings are appropriate for swamp areas. Kampung 3-4 Ulu still show as traditional settlement with many traditional building namely 'limas' houses and 'gudang' houses and the urban space pattern is formed and influenced by natural conditions (Lusetyowati, 2009).

There are two problems according to study, they are what kind of urban spaces in the wetland settlement and is there any relationship between the urban space pattern and the wetland area? Aims of the study are to identify urban spaces in 3-4 Ulu settlement and to analyze urban space pattern and the relationship with the natural condition as wetland settlement.

2. METHODOLOGY/ EXPERIMENTAL

The research methods is mix method include qualitative and quantitative methods. The research strategy use concurrent method, consisting of case study method and survey method (Creswell, 2010). Concurrent method is a method which the researcher converges quantitative and qualitative data in order to provide a comprehensive analysis of the research problem. Concurrent mix method is a procedure where qualitative research (case studies) will be performed in conjunction with quantitative research (survey research).

The population is the residents who live in Kampung 3-4 Ulu, especially along the riverside. The sample are 100 household that representing the whole population. The sample selection is based on the spatial distribution that consists of 5 neighborhoods.

Sampling used non probability sampling technique. Non-probability sampling technique is more appropriate, because it represented the population and the results could be generalized (Morisan, 2012). Samples had been taken are selected sample or purposive sample, which

includes 50 respondents, subjects or the selected elements that had certain characteristics and qualities. In this study, samples were selected based on the spatial distribution from the location. The study location was consist of 5 (five) neighborhood that located in Kampong 3-4 Ulu Palembang. Each neighborhood is represented by 10 samples. The data collections used several methods, such as interviews, observation and questionnaires.

A community survey conducted by the enclosed questionnaires which using Likert scale. Each answer will be scaled 1 until 5 that include five answers: strongly (score 5), agree (score 4), less agree (score 3), not agree (score 2) and strongly disagree (score 1). The questionnaires include landuse, building mass, circulation, open space and adaptation. The analysis method was descriptive analysis, which explained the data include object of research that has been obtained from the field observation and interviews.

3. RESULTS

3.1. Overview of the Wetlands Settlements

Palembang Municipality area was largely swamp area, which going to decrease because of reclamation. Rapid development in the city emerged the need for land to build residential and more facilities. It is also triggered by changing in the transport modal from the river transportation into the road. Some wetlands began dumped and changed into the dryland land for construction. This reclamation often didn't use the technical requirements for wetlands reclamation, and emerged some negative impact for the city such as ponding of water during the rainy season and flooding in some areas.

In the wetland settlements, especially along the riverbanks, usually use stilt houses. The settlements have unique characteristics because almost people activities carried out above the water. Human behavior and daily activities are influenced and adjusted the natural conditions. The development of the settlement also has its own characteristics, they grows naturally without give a significant change in its natural environment, by allowing the swamp as it is. However the people's needs for urban space in these settlements are similar, both on dryland and wetland.

People daily activities in the wetland settlement, as well as in other settlements, mostly were done in the house and its surroundings. Residents inhabitants such as showering, washing and defecating are still be done in the river, especially by local people who live along the riverbank. Beside, people also work around the neighborhood earn money, such as selling, fishing, boat building and others. These activities show the relationship between local people activities and the environment of the riverbank.

Outdoor activities in public spaces can be divided into three categories; they are necessary activities, optional activities and social activities (Gehl, 1987). Necessary activities include those that are more or less compulsory going to school or to work shopping, waiting for a bus or a person, distributing mail, in other words all activities in which those involved are to greater or lesser degree required to participate. Everyday tasks belong to this group. And because the activities are necessary, the physical framework influences their incidence only slightly. These activities will take place throughout the year under nearly all condition and more or less independent of the exterior environment. The optional activities includes such activities as taking a walk to get breath of fresh air, standing around enjoying life, or sitting and sun bathing. These activities take place only when exterior conditions are optimal,

when weather and place invite them. The social activities depend on the existing public spaces. Social activities include children at play, greetings and social conversations, communal activities of various kinds and as the most widespread social activities-passive contact, seeing and hearing other people.

3.2. Urban Space Patterns

Based on field surveys there are two orientations of settlements in 3-4 Ulu they are street and river with their own characteristics (Lusetyowati, 2014). Settlement with street orientation has the following characteristics: (1) The main road as the orientation of all the walkways; (2) The buildings also oriented to the road; (3) The buildings at the back yard connect to the road with wooden walkways (alley); (4) The urban space patterns mostly use grid pattern combine with linear pattern; and (5) Less of connecting to the river especially in terms of transportation. Meanwhile the settlement which oriented to the river has following characteristics: (1) River as settlements orientation; and (2) Each neighborhood usually has a small pier as boats station.

3.3. Elements of Urban Space

Land use

Land use in this settlement is same as other places, because the need of space is the same. Land use consists of residential area, commercial areas, public facilities area such as for education, health and the mosque. The residential area is the most extensive area in this settlement, approximately 80% of the total area.

Building Mass

The intensity of the buildings is very high with approximately 80% of building coverage. There are many crowded slums area with the high intensity, especially around Jaya Laksana Street and the Yuching house. Height of buildings mostly is one until two stories only. There are no high-rise buildings in this area.

Circulation

There are two main circulation systems; they are street and river channels. Between street and river channel is connected by alleys that called '*jerambah*'. Alleys are the main path for movement in wetland settlement with the stilt structure above the tidal land. Height of the stilt usually consider based on the highest tide in the area. Public facilities such as schools, mosques, offices, health centers, shops etc usually use the street side, as well as the parking area for cars or tricycles called '*becak*', because of limitation of dryland area. To reach the wetland neighborhood only can use pedestrians or two-wheeled vehicles, so people who have a four-wheeled vehicle usually park on the street side. It needs local parking regulation in order not disturbing traffic movement.

Rivers formerly is as a major transportation channel, the development dryland transport system makes this system only as the alternative paths, mainly the large river. The small rivers are no longer used as a transportation cause of sedimentation.

Neighborhood alleys are narrow alleys with between 1-2 meters width of stilts plat called '*jerambah*'. *Jerambah* is made of wood and in some places using reinforced concrete. Limited access causes some problems, especially for the fire hazard, the fire trucks could not reach the site because there is no way could be passed.



Fig 1. Alley on stilt structure (called *jerambah*)

Open Space

Open spaces include movement path (road, *jerambah*, rivers) and space between the buildings. Open spaces as public spaces primarily located in areas that can be stepped, it means is spaces where people can move (Lusetyowati, 2012). These spaces are formed by the dryland road or '*jerambah*' (alleys on stilts). Other open spaces are spaces between buildings that become swamps during the tide flooded season and become dryland during the dry season. To fulfill the need of open spaces, sometimes local people try to widen the land by adding wooden board on stilts. Beside the veranda is also an important part of the house as a place to socialize with neighbors.

In Kampong 3-4 Ulu, there is not any open space for children playground. But the children have their own play patterns by adjusting the existing limitation spaces. Children can play everywhere, how and at any place.

3.4. The community survey result

A community survey is meant to see how the public's view of the spatial patterns in kawas settlements where they live. Respondents were selected randomly based on the spatial distribution in the study area. The number of respondents is 50 people. Numbers of respondents based on gender are male 32 respondents (64%) and female 18 respondents (36%). Numbers of respondent based on occupation are student 8 respondents (16%), public sector 6 respondents (12%), private sector 14 respondents (28%), self employer 10 respondents (20%), house wife 6 respondents (12%) and others 6 respondents (12%). Numbers of respondents based on education, notcompleted primery school 8%, primary school 4%, secondary school 28%, high school 52% and bachelor 8%.

The results of the survey can be seen as follows.

Landuse

Based on data processing shows that people consider land use is an important element in structuring the settlement area (16% strongly agree and 40% agree). But most people do not

understand how to arrange the pattern of land uses. The majority of the communities agree that land use for open space does not fulfill their needs, because there is a very little open space. Land use for the educational, health and worship is considered adequate, although not all are available in the area. They can use such facilities around the settlement. About 58% of respondents agree that mix land use is most appropriate for structuring a settlement area. And according to people still use other land that has not been available, namely for community activities and public open space.

Building Mass

A community survey in building mass show as follows:

- The majority of respondents consider the setting of the building is not good and not been regularly.
- The streetback line is also considered not eligible. The distance between buildings is considered too narrow and vulnerable during fire. The distance between building and the street is also not to fulfill the requirements.
- Building intensity is high (more than 75% respondents).
- Building orientation mostly to street or alley, around 42% of respondents strongly agree and 52% of respondents agree.
- There is no clear pattern between buildings and open spaces, it is considered by the majority of respondents (80% respondents).

Circulation

Circulation is an important aspect in supporting the day-to-day activities of people living in the area of research. Based on these survey results obtained following matters:

- The majority of respondents agree that the road conditions are adequate (50% respondents) and partly disagree.
- Neighborhood streets are less connected with street and make less circulation structured. Most respondents did not agree that the settlement has been connected with major roads (76% respondents).
- Footpath is inadequate (68% respondents).
- The majority of respondents consider the circulation patterns are still not well-organized (52% respondents).
- There is a requirement for a boat station (52% respondents).

Open Space

Open space requirements are still needed by the population, both for daily activities, recreational activities and community activities. The results of open space survey as follow:

- The open space is not fulfilling the needs of local people (84% respondents).
- The green open space is also inadequate ((78% respondents).
- Open spaces along the riverbanks (waterfront) do not work properly (68% respondents).
- Waterfront is not as the building orientation (70% respondents), while the riverbanks have high potential to be public open spaces.

- The open space that already exists can easily accessible by the people (86% respondents).
- There are no open spaces for children's playground (64% respondents).

Adaptation

The results of relationship between urban spaces and the adaptation process in the wetland area are as follows:

- Part of respondents (46%) agrees that the wetland area is less favorable for settlement but the majority respondents (54%) argue the contrary.
- The stilt houses are suitable for this wetland area (52% respondents), while the rest argue otherwise.
- Reclamation is considered less appropriate in wetlands (68% respondents).
- There is a linkage between the people's daily activities and the wetland (56% respondents).
- People able to adjust to the natural conditions that influenced by tide (92% respondents).

4. DISCUSSION

4.1. Urban Space Pattern

The pattern of residential units in the settlement neighborhood marsh area can be divided into several kinds of patterns, namely a linear pattern, a grid pattern and the pattern of clusters (Lusetyowati, 2014). The third pattern formation is much related to the organic growth patterns of settlement and unplanned. Residents build their houses in layers starting from the main transport lines. The third pattern is already known in some residential areas, although not too neat (still messy) are influenced also by the wooden material that used to make the walkways (path). The wooden walkways lead to form a straight pattern and connect with each other to form a linear pattern, a grid pattern, a cluster pattern or a combination of all.

4.2. Urban Space Elements

Land use

Land use in this settlement is no different with other places, because the need of space is the same. Land use consists of residential area, commercial areas, public facilities area such as for education, health and the mosque. The residential area is the most extensive area in this settlement, approximately 80% of the total area. Local people agree that land use is the important element in structuring the wetland settlement; it means that re-structuring the land use can improve the quality of settlement.

Problems in land use are lack of open space and lack of regulation that is based on the wetlands regulation. The needs of open space can be fulfilled by using and improving waterfront, and also designing space between buildings to be usefully open space. Land use regulation has a major impact to natural resources including water, soil, plants and animal.

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Land use degradation has been exacerbated where there has been an absence of any land use planning.

Building Mass

The distance between the buildings is very tight and cause less environmental healthy. Under the stilt houses are not exposed the sunshine and become moist, and then make so many mosquitoes come. It is also caused by an unhealthy lifestyle, such as throwing the trash or household waste to under the house.

Formerly the river was in front of the building and then turned into the back yard for years and tends to become slump. Building expansion also make the riverbank becomes unclear and many buildings growth unregularly along the riverbank. This condition will lead the river quality decrease. The transformations of wetlands cause reduction of water catchment areas. Loss of wetlands will reduce the water flow into the soil through infiltration process and will improve water surface. Water flowed into the river and into the sea without any infiltration process. Another consequence is the reduction of flora and fauna in the wetland habitats.

Circulation

Linear form in traditional settlements in Ulu 3-4 is formed by the circulation pattern. This pattern has actually been used since the formerly settlement in the wetlands, because the settlement growth follows the path of an existing road or connect existing roads. The building orientation is to circulation path, street or footpath. A linear pattern shows the connection between the main road and the river with footpath called 'jerambah'. Usually at the meeting point between 'jerambah' and the river we find a dock.

A grid pattern is formed by the combination of several linear circulations (main roads and footpaths). Grid pattern of traditional settlement in wetlands is irregular form. In wetland settlement along the riverbanks, the grid pattern connects the main road to the river. There is also a small pier at the meeting point between the 'jerambah' (footpath) and the river. Cluster pattern in traditional settlement is usually formed because of family relationship. This pattern is usually found in a small neighborhood unit. Some houses build around an open space as a building orientation. Usually these houses are owned by one big family.

Open Space

The problems of open space in this settlement are lack of space for open space, the existing open spaces did not fulfill the people need, waterfront as public space is not work properly and there is not a space for playground.

According to World Health Organization the living conditions in the urban environment are the key to the health and well-being of its inhabitants. Evidence from the literature consistently indicates that there is an association between the built environment, health and well-being, and levels of physical activity (Lestan, 2014). The lack and poor quality of open/green space in urban neighborhoods can be a serious restriction for the wellbeing of the inhabitants as it does not support developing healthy life-styles, including spending time outdoors, walking, playing, etc.

Zoning Regulation

To protect the wetlands, it needs special regulation, such as zoning regulation. The zoning regulation currently only regulates the dryland, and the wetlands use the same regulation. The dryland oriented regulation will reduce the wetlands area faster because people build their settlements without consider the natural condition as wetland. One of the content of zoning regulation is urban space that includes land use, building mass, circulation and open space. Urban space regulation is also important to conserve the urban wetland area. To protect the urban wetland needs the wetland oriented regulation based on the natural and local people characteristic. The traditional settlement in wetland area, especially in the riverside, shows how the wetland can be protect. The harmonious relationship between natural environment, local people and the built environment is important to be considered in wetland planning and development.

5. CONCLUSION

1) Land use

- Settlement patterns have three patterns, they are linear pattern, grid pattern and cluster pattern. The pattern formation is much related to the organic growth and unplanned.
- Land use is an important element in structuring the settlement and the mix land use mix is most appropriate for structuring land use.

2) Building mass

- The setting of the building is not good and unregularly, the street back line is also not eligible and the distance between buildings is too narrow and vulnerable during fire. They also agree that there is no clear pattern between buildings and open spaces.
- Intensity of buildings in some parts is very high and the buildings stories in almost all the area are 1 until 2 floors only. The building distance is very tight and cause less environmental healthy.

3) Circulation

- There are two main circulation, they are street and river channels. The alley is usually a path with between 1-2 meters width on stilts called 'jerambah'.
- Circulation in the wetland settlement is combining between river, street and footpath circulation. At the meeting point in the edge of footpath beside the river, usually we find a small pier for their boats station.

4) Open space

- Open space as a public space primarily located in areas that can be stepped, it means spaces that people can move.
- There is no open space for children's. But the children have their own games that adjust to the limitations of space.
- Open space requirements are still needed by the population, both for daily activities, recreational activities and community activities. In this settlement the open space is not fulfill the local people needs. Open space along the riverbanks (waterfront) is not work properly and the there is no open spaces for children's playground.

5) Zoning regulation

- Urban space regulation is also important to conserve the urban wetland area. To protect the urban wetland needs the wetland oriented regulation based on the natural and local people characteristic. The traditional settlement in wetland area, especially in the riverside, shows how the wetland can be protect. The harmonious relationship between natural environment, local people and the built environment is important to be considering in wetland planning and development.

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