



BEST: Journal of Built Environment Studies

P-ISSN: 2746-9077 E-ISSN: 2746-9069
 Journal Home Page: journal.ugm.ac.id/v3/BEST
 DOI: 10.22146/best.v4i1.5920



URBAN LEFT-OVER SPACE: CHARACTERISTIC IDENTIFICATION OF THE IN-BETWEEN SPACES IN RIVERSIDE SETTLEMENT (CASE STUDY: MARTAPURA RIVERSIDE SETTLEMENT AT SASIRANGAN VILLAGE)

Juleta Nadea Anilaputri^{1*}, Syam Rachma Marcillia²

¹Department of Architecture and Planning, Faculty of Engineering, Universitas Gadjah Mada, Yogyakarta, Indonesia

²Department of Architecture and Planning, Faculty of Engineering, Universitas Gadjah Mada, Yogyakarta, Indonesia

ABSTRACT

The identity of "Thousand Rivers' City" makes the river have the meaning of identity and life orientation. River-oriented life inflicted an adaptive behavior called *budaya sungai*. However, the globalization process has caused a shift from river-oriented to land-oriented and creates heterogeneity in riverside settlements. Creating variations of typology such as *atas sungai*, *bantaran sungai*, and *tepiian sungai*. The emergence of these typologies indirectly creates urban leftover space as a transition called the in-between space. This research aims to identify the characteristic of the in-between spaces in riverside settlements so that the space does not become negative and can be utilized to meet the living needs of people who live in riverside settlements. The research used explanatory sequential design methods, based on the quantitative phase, a figure-ground analysis identified curvilinear as the typological patterns and homogenous as textural patterns of the riverside settlement. The map shows a high-density level of solids with no central open system void. Based on the qualitative phase, all in-between spaces have linear patterns and are mostly made of wood materials. 76.47% of enclosures are open but in contrast to land use which is mostly private. 2 out of 17 in-between spaces could not be characterized.

Keywords:

Riverside settlements, urban leftover, in-between spaces, characteristics, figure-ground

ARTICLE INFO

Received 23 October 2022

Accepted 15 November 2022

Available online 31 May 2023

***Corresponding Author**

Juleta Nadea Anilaputri
 Universitas Gadjah Mada
 Email: putrijuleta@mail.ugm.ac.id

1. Introduction

"City of a Thousand Rivers" is an identity that the City of Banjarmasin has long carried. The identity is obtained from the many rivers flowing through this area; one of the major rivers is the Martapura River. The river not only acts as a water source and a transportation mode but also as the identity and orientation of the life of *Banjarese* (Afdholy, 2017). River-oriented life gives rise to a culture that is then called *budaya sungai*. *Budaya sungai* is an adaptive living behavior in riverside communities. This behavior causes riverside communities to do daily activities oriented toward the river (Dahliani, 2016 in Afdholy, 2017), then produces settlements with a linear pattern along the river's banks following the river's shape.

Budaya sungai and river-oriented activities produce architectural products in the form of *Rumah Lanting*. In the 17th century, *Rumah Lanting* was initially inhabited by *Banjarese* (Beckman, 1718 in Damayanti, 2019). Over time, the spread of culture caused the residents of this house to become ethnically heterogeneous. A heterogeneous population is natural to be owned by a city and could cause territorial behavior that can be categorized based on ethnicity and origin (Rapoport, 1977).

However, the globalization process caused a shifted orientation in the pattern of living of the *Banjarese*, from river-oriented to land-oriented. The factors for this shifted orientation are adequate road infrastructure that is easier to access, and the community's economic capacity that has begun to increase (Afdholy, 2017). This shifted orientation then causes heterogeneity in the typology of riverside settlements, giving rise to variations in the typology of settlements. Based on its location, the typology of settlements on land is called *tepiian sungai*, those between land and rivers are called *bantaran sungai*, and those above the river are called *atas sungai*.

The emergence of these three types of riverside settlement typologies indirectly causes a transitional space that functions as a place for neutral interaction between heterogeneous settlement types (Suttles, 1972 in Rapoport, 1977) or commonly referred to as the in-between space. In contrast, leftover space is an empty space with no spatial interaction with the surrounding environment and cannot create transition states. Meanwhile, the in-between space can create a transitional state which is usually limited by the boundaries of the surrounding structure and infrastructure (Azhar et al.,

2022).

Sasirangan village is one of the riverside settlements that still exist as a representation of Banjar Village (Hadinata & Mentayani, 2018). This village has also experienced significant transformation and adaptation in the typology of its riverside settlements (Mentayani, 2016). Its geographical location on the riverside indirectly has the characteristics of the three typologies of riverside settlements, namely *bantaran sungai*, *tepian sungai*, and *atas sungai*.

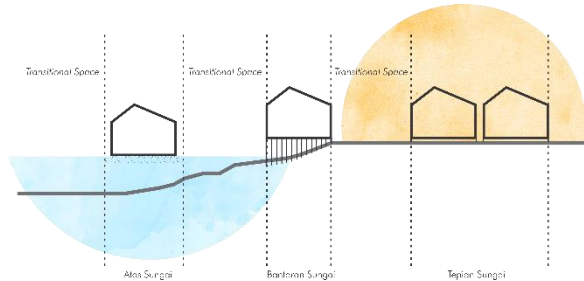


Figure 1. Riverside Settlement in Sasirangan Village
Source: Author (2022)

Differences in the typology of settlements produce different types of in-between spaces based on their identities. According to Lynch (1981), identity is a condition in which a person can recognize or remember a place because it has a unique character and is different from other places. The in-between space in the typology of riverside settlements in *Sasirangan* Village has a different identity and characteristics based on the orientation and territory of the settlement typology. So that further research is needed to identify the characteristic of the in-between spaces in riverside settlements so that the space does not become left-over spaces and can be utilized as much as possible to meet the living needs of people who live in riverside settlements at *Sasirangan* Village, *Seberang Masjid* Village.

2. Literature Review

2.1 Urban Left-Over Space

In his book called 'Finding Lost Space', Trancik (1986) referred to urban left-over space as lost space. He defined these spaces as undesirable urban areas in dire need of redesign and having a negative contribution to the environment. Furthermore, left-over space is an empty, ill-shaped, solitary space with zero spatial interaction with the surrounding environment (Azhar et al., 2022).

Urban left-over spaces are usually in the form of unused buildings, abandoned sites, or left-over unstructured landscapes within urban areas. But based on their physical and usage qualities, urban left-over could be in the form of unbuildable areas, vacant lots, sub-spaces, interstitial spaces, and neglected public parks and plazas (Alanyali, 2003).



Figure 2. Interstitial Spaces - Unused Front Yard
Source: Alanyali (2003)

At the macro scale, urban left-over spaces are divided into two qualitative categories such as continuous and discontinuous spaces. The continuous space is transitional, where time, space, and other circumstances are fundamental. While discontinuous space is temporal with various physical circumstances and has zero relation to the setting (Azhar et al., 2022).

Five major aspects arecausing these spaces to emerge; automobile dependency, modern movement, privatization of public spaces, shifted land use, urban renewal, and zoning. However, identified urban left-over could offer opportunities. Creating site plans with figure-ground as a generator to define the indoor and outdoor spaces is the first step of the identifying process. Then designer could fill in the gaps with the framework of design opportunities and the creative infill to reshape the urban left-over for future investment (Trancik, 1986).

2.2 In-Between Spaces

The concept of in-between spaces was originally adopted by several postmodernists, post-humanists, and feminists to overcome the restrictive boundaries of the "binary opposition" structure that dominates Western knowledge (Elizabeth, 2001). Binary Opposition is a structuralist term that refers to two contrasting ideas such as white and black, big and small, being and not being. Azhar et al. (2022) considers in-between spaces as a transition, not only acting as connectivity between adjoining building to the environment but also acting as interconnections within the city's fabric. Thus, in-between space is a connection that unites a boundary or temporary space (Brookes, 2012 in Shahlaei & Mohajeri, 2015).

Venturi (1977, in Shahlaei & Mohajeri, 2015) also mentions the importance of in-between space as it can be the main manifestation of contradictions in architecture because it has an important goal of being a cover rather than a guide for space and separating the inside from the outside. The contradiction here refers to the inside and outside of the room, where there can be a layer between the two more or less contrasting in terms of shape, position, pattern, and size.

In-between space is not a physical space, but a condition where users can feel the atmosphere between two spaces at the same time. A concept where two worlds overlap with each other and humans can feel the presence of the both worlds (Hertzberger, 1991). These spaces may appear negative, but well-planned in-between spaces could manifest a positive potential. In general, in-between spaces are a defined environment and can be identified by the attachment to the settings. Figure-ground is put into consideration to identify in-between spaces in urban areas (Laiprakobsup, 2007).

Spatial planning for formal uses such as art installations or small-scale projects such as providing street benches, street exhibitions, and green parks are some of the approaches used by Hamelin (2016). However, these spaces rarely attract formal authorities' attention. So, it is frequently misused by informal activities such as graffiti (Laguerre, 1994 in Kasarabada, 2020).

Based on their spatial settings, in-between spaces can be divided into; 1) A layer at the edge of spaces 2) A space between defined spaces 3) An overlapping space, a

recessed space at the edge, or between different spaces (Laiprakobsup, 2007). At the micro-scale, in-between spaces are divided into six types that can be driven by continuous and discontinuous spaces. (Azhar and Gjerde, 2016).

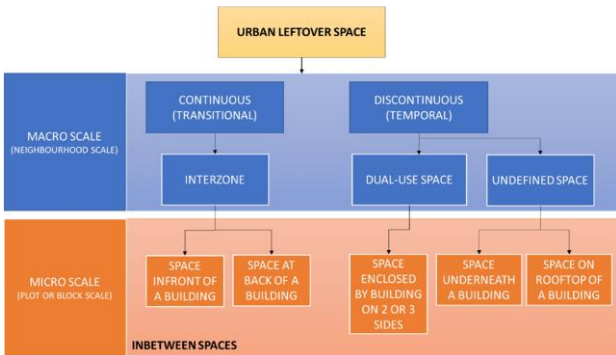


Figure 3. Spatial Classification of In-Between Spaces
Source: Azhar et al. (2022)

2.3 Physical Characteristics

Character is the embodiment of an environment that is formed physically and non-physically. These characteristics can be seen from aspects of environmental physical conditions as well as other immeasurable aspects such as culture and social patterns of life (Budharjo, 1991 in Sastika 2017). Each settlement has different characteristics that are influenced by economic, social, cultural, and local environmental factors (Sastika, 2017). Characteristics of the environment are an important indicator to explore the potential of the environment (Ekaputra, 2014).

Locality becomes a prominent aspect of the characteristics of an environment. For the characteristics to become the 'soul of the place', the locality is categorized into three things such as physical features, cultural systems of society, and meaning/symbolism (Garnham, 1985 in Dipta, 2015).

Principles of identifying the characteristics can also be considered in terms of spatial, visual, social, and functional characteristics. The approach of these principles is to reflect and develop the existing sense of place (Carmona et al., 2010).

Table 1. Characteristics of Space

Characteristics		
Spatial	Visual	Social & Functional
Street Patterns & Block/ Plot Sizes	Proportions & Relationships	Human Scale
Siting	Relative Visual Scale	Active Frontages
Size/ Massing	Articulation & Richness	Iconography & Visual Cues
Building Scale	Pattern & Rhyme	Transition (Public – Private)
	Rhythm	
	Horizontality & Verticality	
	Materials	

Source: Carmona et al. (2010)

2.4 Figure-Ground Theory

Figure-ground is the study to understand urban form by analyzing the relationship between building mass and open space. The analysis is a graphic tool for identifying

the urban fabric based on its patterns and textures. The patterns are illustrated into a solid mass as 'figure' and open voids as 'ground'. The analysis is carried out by differentiating colors on each element. Solid is illustrated as black while void is illustrated as white on the map to show the composition of urban form in a city. These illustrations of black and white will create an urban pattern often called fabric. There are six typological patterns of solids and voids: grid, angular, curvilinear, radial concentric, axial, and organic (Trancik, 1986).

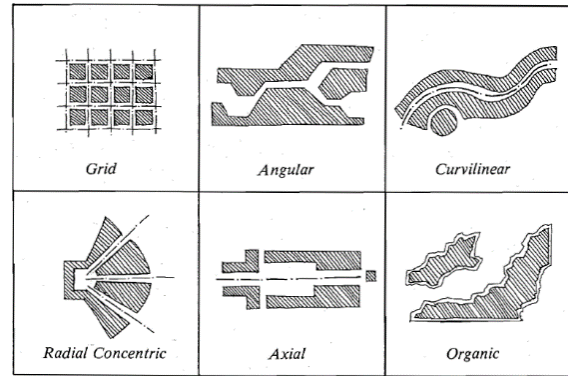


Figure 4. Typological Patterns of Solids-Voids
Source: Trancik (1986)

Meanwhile, Zahnd (1999 in Rachman, 2010) classified textural patterns of the urban area into three; homogeneous, heterogeneous, and scattered. Homogeneous is where there's only one pattern in the planning and showed a high-density level. Heterogeneous have two or more patterns that collide with each other, causing a variety of compositions. Lastly, scattered is an abstract and unclear pattern, mostly caused by unplanned areas.

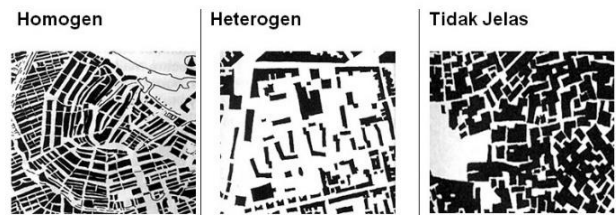


Figure 5. Textural Patterns of Urban Area
Source: Zahnd, 1999 in Rachman (2010)

Zahnd also classified solids and voids into three basic elements based on their nature and shape.

Table 2. Basic Element of Solids and Voids

Basic Element	Description	Figure
Single Block	Individual, seen as bigger unit, had an important role, hierarchy	
Edge defining Block	Act as liner limiter formed by 1-3 sides	

Field block	Variety of masses and forms and seen as a whole	
Linear Closed System	Linear and Closed	
Central Closed System	Focused and Closed	
Void		
Central Open System	Focused and Open	
Linear Open System	Linear and Open	

Source: Zahnd, 1999 in Rachman (2010)

3. Research Method

The study applies mixed methods, specifically explanatory sequential design. This method is conducted by analyzing the quantitative phase first and then following up on specific matters with the subsequent qualitative phase to help explain the quantitative results (Creswell & Clark, 2018). There are five main stages in this research to obtain data and information from the primary sources to include in the research analysis. The five stages of research are as follows:

Stage 1a:

Preparation of the spatial map of *Sasirangan* Village as a basic map for figure-ground analysis. The map contains specific areas as the research will concentrate on neighborhood area 4 to neighborhood area 6.

Stage 1b:

Preparation of the literature about the in-between spaces of the riverside settlement of the Martapura River in *Sasirangan* Village. The in-between spaces that will be brought to discuss is (1) between *tepi sungai* and *bantaran sungai* – regional road (2) between *bantaran sungai* and *atas sungai* – *titian* & alley (3) between *atas sungai* and river – *batang*.

Stage 2:

Collecting data through (1) field survey of the riverside settlement of the Martapura River in *Sasirangan* Village; (2) field survey on the in-between spaces; (3) marking up the location of the in-between spaces using the walk-through method; (4) documentation on the riverside settlement; (5) documentation on in-between spaces.

Stage 3:

The quantitative phase is conducted by doing figure-ground analysis on a spatial map to collect the urban pattern of the riverside settlement of the Martapura River in *Sasirangan* Village. This stage will determine whether there are more solids or voids. This will also lead to a discussion about whether the solid and void are categorized into specific elements.

Stage 4:

The qualitative phase is conducted by identification of the in-between spaces with the follows up of the quantitative data. The identification process will be carried out using certain variables based on the literature review of

characteristics of space by Carmona et al. (2010). The variables for research are as follows:

Table 3. Research Variables

Variables	Sub-Variables	Indicator
Spatial Characteristics	Patterns	Linear – Non-Linear
	Massing	Sense of enclosure (open, semi-open, semi-close, close)
	Land use	Public - Private
Visual Characteristics	Proportions & Relationships	Relationships of in-between spaces with surrounding building/ environment. Proportions of single or many
	Materials	Based on a field survey

Source: Author (2022)

Stage 5:

Final discussion about the research analysis which focused on the in-between spaces in three types of settlement typologies results as (1) which space is classified as in-between spaces - positive, and which space is classified as urban left-over spaces - negative (2) characteristics of in-between spaces in *Sasirangan* Village (3) recommendation for future research.

4. Results and Discussions

4.1 Figure Ground Analysis

Based on the figure-ground map, it can be seen that the riverside settlement in *Sasirangan* Village follows the shape of the rivers. Curvilinear is the typological pattern of solids and voids in this area, where the river act as an axis to the settlement. Meanwhile, the textural patterns are homogeneous. The figure-ground map shows a clear pattern with high-density settlements. Because of the density shown on the map, it can be concluded that there are more solids than voids in this area of research.



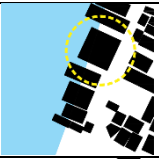







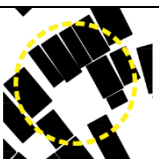

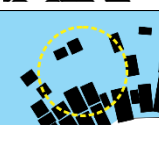

Figure 6. Figure Ground Analysis

Source: Author (2022)

The basic element variable was also conducted to identify which solid block and which void system this

riverside settlement had. Results show that all basic elements can be found at *Sasirangan* Village except the void central open system.

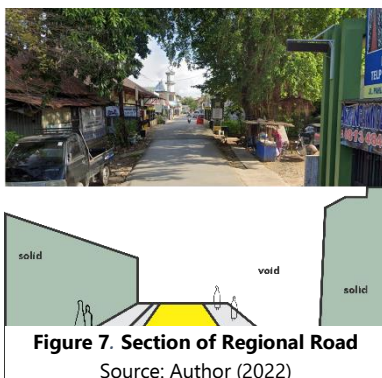
Table 4. Basic Element of Solids and Voids

Solid Element	Figure Ground	Picture of Elements	Land Use
Single Block			Commercial (Yaya <i>Sasirangan</i>)
Edge defining Block			Private Settlement
Field block			Commercial (Food Stall) – Void – Private Settlement
Void Element	Figure Ground	Picture of Elements	Land Use
Linear Closed System			Commercial (Food Stall & Shop)
Central Closed System			Commercial (Food Stall & Shops)
Linear Open System			Private Settlement (<i>Lanting</i> House)

Source: Author (2022)

4.2 Characteristics of In-Between Space between *Tepian Sungai* and *Bantaran Sungai*

The regional road is the in-between space between the typology of *tepiian sungai* and *bantaran sungai*. The pattern of this space is linear with an open enclosure. The pedestrian way acts as boundaries with vegetation alongside them. Since the identity of this in-between space is a regional road and its location is in the middle of the



village, the land use of this space is public and made of asphalt.

4.3 Characteristics of In-Between Space between *Bantaran Sungai* and *Atas Sungai*

To facilitate the analysis, the findings of the characteristics of the in-between space between *bantaran sungai* and *atas sungai* are analyzed with segmentation according to their neighborhood.

A. Neighborhood 6

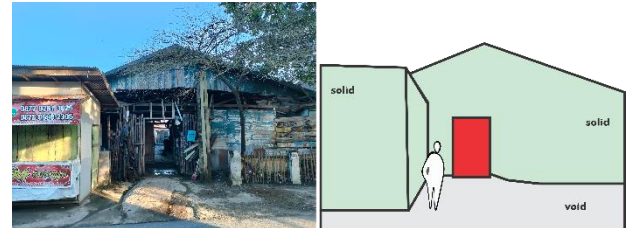



Figure 8. Illustration of Space 6a

Source: Author (2022)

Two in-between spaces are found in this area. Space 6a location it is a bit hidden, located at the edge of a building with solid buildings on both sides. At the end of this space is a private toilet or locals said *jamban*. This space had a closed ceiling at half entry, but the ceiling is open in the middle till the end.

Table 5. Characteristics of Space 6a & Space 6b

Sub-Variables	Space 6a	Space 6b
Patterns		Linear
Massing	Semi-Close	Open
Land Use	Private	N/A
Proportions & Relationships	 Single - Single	
Materials	Wood	Soil & Water

Source: Author (2022)

The second space is 6b located between two houses and behind the bridge. Even though this space has characteristics such as linear pattern, open enclosure, public, single–single, and made of soil. This space is an empty space that has zero function.



Figure 9. Illustration of Space 6b

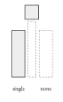

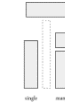
Source: Author (2022)

B. Neighborhood 5

There are three in-between spaces in neighborhood 5 classified as 5a-5b-5c. These spaces have similarities in patterns and materials. All of them are used as *titian*. *Titian* is a nickname given by locals for accessibility to the river. *Titian* was originally made from ironwood and had a major role in the riverside settlement. The role is to

connect *bantaran sungai* houses and *atas sungai* houses or called *lanting* so the residents of each house could access the mainland (Afdholi, 2017). Some of *titian* is private because of its connectivity to private properties.

Table 6. Characteristics of In-between Spaces in Neighborhood 5

Sub-Variables	5a	5b	5c
Patterns	Linear		
Massing	Semi-Open		Semi-Close then Open
Land Use	<i>Titian</i> to reach public <i>Jamban</i> and public seating	<i>Titian</i> to reach private <i>Jamban</i>	<i>Titian</i> to reach traditional motorboat pier called <i>kelotok</i>
Proportions & Relationships	 Single - None	 None - Single	 Single - Many
Materials	Wood		

Source: Author (2022)

Space 5a and 5c are classified as public *titian* because of their purpose to connect into public space. Space 5a has a public seating made of wood where locals often sit and share their story on a sunny afternoon.

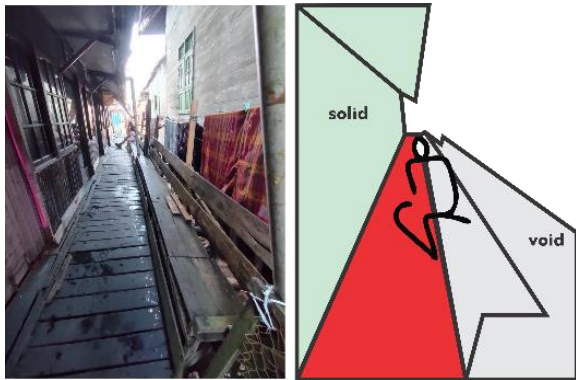


Figure 10. Illustration of Space 5a
Source: Author (2022)

Space 5b is between the empty space and the boarding house. The empty space is used for the rainwater that drips from the roof of the neighbor's house, so it does not leak into other houses.



Figure 11. Illustration of Space 5b
Source: Author (2022)

While space 5c is the link to get to the *kelotok* pier. *Kelotok* is a local transport of the rivers. Usually, *kelotok*

is individually owned. Residents often tether their *kelotok* with ropes to one of their pillars' houses. To reach space 5c, we have to pass through the boarding houses of the *kelotok* owners first before proceeding to *titian* and head to *lanting* house that changed its function into *kelotok* pier. *Jamban* is also found at the end of this space, mostly used by *kelotok* owners.

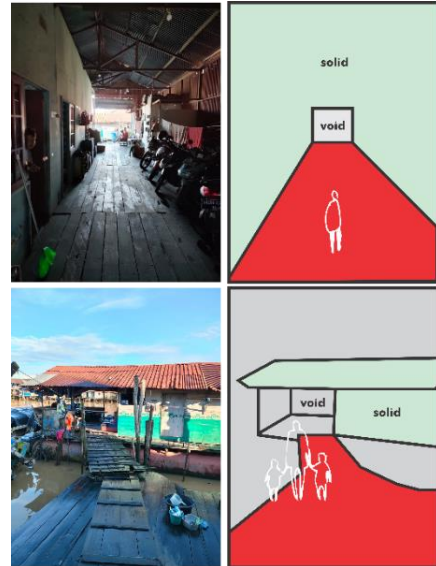


Figure 12. Illustration of Space 5c
Source: Author (2022)

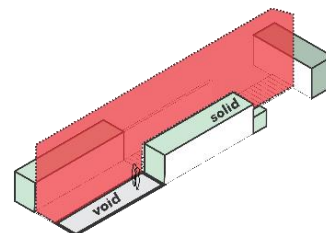


Figure 13. Illustration of Space 5c
Source: Author (2022)

C. Neighborhood 4

In-between spaces in this neighborhood are unique and huge in numbers. Some of the spaces have longer distances and 2 different materials can be found in one space at a time. Space 4a looks like an alley at the entrance with empty space on the right and a house on the left. But deeper, it will lead into two *titian* that head straight to *lanting* house. The path in the alley is made of concrete while *titian* is made of wood. The first *titian* not only acts as access to *lanting* or from *lanting* to the mainland but also acts as a terrace for people who lives in the boarding houses.

Space 4b is just an empty lot between two

residential houses. In front of the space is a pedestrian way considered void.



Figure 14. Illustration of Space 4b
Source: Author (2022)

Space 4c is in the form of an alley and *titian*. Alley is made of concrete material and *titian* is made of wood. There are two buildings at the end of this space, the first one on the left is storage. Locals store items that are used publicly such as coffins. Then *titian* branched to the right to where *jamban* is.

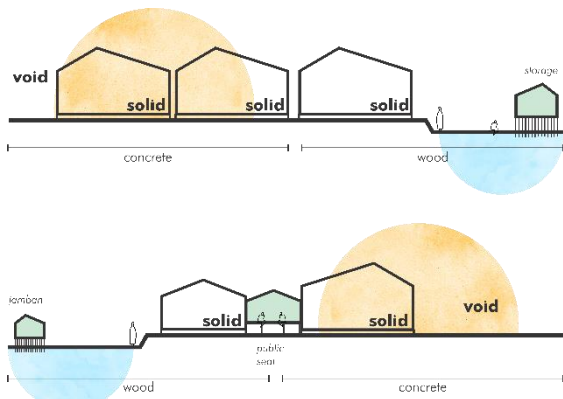


Figure 15. Section of Space 4c (above: left side, below: right side)
Source: Author (2022)

Space 4d is also in the form of alley and *titian*. But the alley here is made of paving blocks. There are also two buildings at the end of the path, *jamban* and *lanting* house. *Titian* branched into two paths, the right branch heads to *lanting* house while the left branch heads to *jamban*.

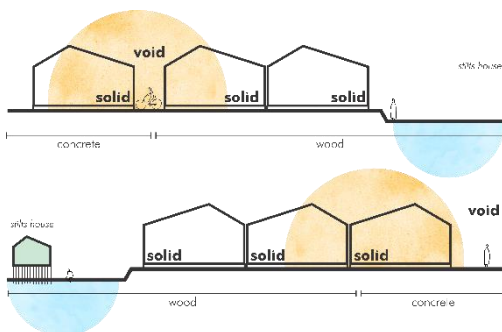


Figure 16. Section of Space 4d (above: left side, below: right side)
Source: Author (2022)

The last space in this neighborhood is space 4e. This space is similar to space 4c which is also in the form of an alley and *titian*. The material of the path is also the same, but at the end of this space is not in a floating structure or *jamban*. Instead, there is a stilts house or

Banjarese would call it '*rumah panggung*'.

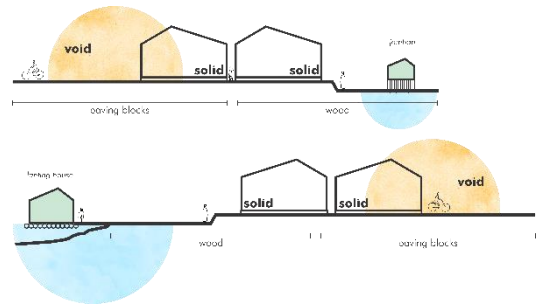


Figure 17. Section of Space 4e (above: left side, below: right side)
Source: Author (2022)

The characteristics of space 4f are almost the same as 4e, the only difference is the use of the land which 4f have is private.

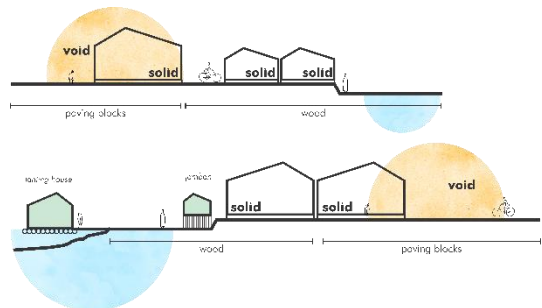


Figure 18. Section of Space 4f (above: left side, below: right side)
Source: Author (2022)

The characteristics of all in-between spaces in neighborhood 4 are as follows:

Table 7. Characteristics of In-Between Spaces in Neighborhood 4

Variab les	4a	4b	4c	4d	4e	4f
Patterns				Linear		
Massing				Open		
Land Use	Private	N/A	Public	Private	Public	Private
Proportions & Relationships	Single-Many	Single-Single		Many-Many		
Materials	Concrete & Wood	Soil & Grass	Concrete & wood		Paving Blocks & Wood	

Source: Author (2022)

4.4 Characteristics of In-Between Space between Atas Sungai and Rivers - Batang

Batang is rectangular shaped with a raft structure, and wooden floors, and has no shade (Afdholi, 2017). *Batang* has multiple roles such as toilet service area, loading dock from *kelotok* or bigger motorboat, and place for *jukung* (traditional boat without fuel) to tether. Not only that, it is also a place where people get ready to take a bath in the river and a place where people wait for traders who pass

by and sell daily goods either with *jukung* or *kelotok*.

There are two types of *batang* in a riverside settlement based on their typology location. The first one is stilt type, *batang* at *bantaran sungai* houses usually have this type.



Figure 19. *Batang* with Stilt Structure
Source: Author (2022)

Some of them are usually attached to nearby houses or even owned individually and tend to be private, but some of them are stand-alone for public use. Stilt structures tend to follow the structure of the house they are attached to. Since houses at *bantaran sungai* mostly have stilt structure, *batang* at *bantaran sungai* also have stilt structures. Locals usually used it as a bridge to use *jamban*, a place to wash clothes in the river, a foothold for children to dive into the river, and a place to chill and chat. The privateness depends on what place *batang* attaches to.



Figure 20. Children Sitting at *Batang* After Swimming in the River
Source: Author (2022)

The second is the floating type at *atas sungai* typology, this type is part of *lanting* houses. The use of private *batang* is based on the owner's activities and needs. Some owners have *kelotok*, so they make a structure with wood piles and tires for *kelotok* to tether. They often put their belongings at *batang* like water barrels, flowerpots, laundries, etc.



Figure 21. Private *Batang* at *Lanting* House
Source: Author (2022)






However, interesting things are found after the field survey, where not all *batang* at *lanting houses* are private. There is *lanting* house that becomes a *kelotok* pier and a public place for boat drivers to sit and relax. As we can see from Figure 21, a wood pile and tire can be found at the side of *batang* to tether *kelotok* with ropes. Thus, the privacy of *batang* depends on the function of the building.



Figure 22. Floating Public *Batang* at *Lanting* House
Source: Author (2022)

The total of *batang* found is five, four of them are floating type and one of them is stilt type with results as follows:

Table 8. Characteristics of *Batang* as In-Between Spaces

Variables	1f	2f	3f	4f	5s
Patterns	Linear				
Massing	Open				
Land Use	Public	Private			Public
Proportions & Relationships	Single - None				
Materials	Wood				
					

Source: Author (2022)

5. Conclusion

Sasirangan Village has curvilinear typological patterns with a high-density level of solids. This shows that this settlement is densely populated with homogeneous textural patterns. All basic elements of the figure-ground can be found except for the void – central open system. This indicates the lack of open public space at *Sasirangan* Village.

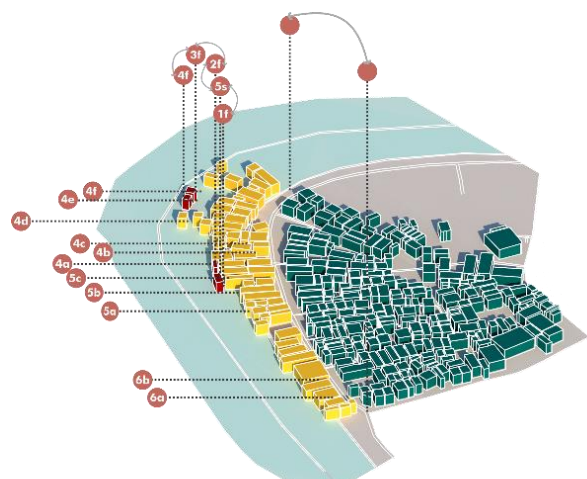


Figure 23. In-Between Spaces Distribution Map
Source: Author (2022)

The total of 17 in-between spaces found are 1 space between *tepiian sungai* and *bantaran sungai*, 11 spaces between *bantaran sungai* and *atas sungai*, and 5 spaces between *atas sungai* and river. It can be concluded that not all in-between spaces are well used. Some of them left abandoned and left over. Two out of eleven spaces between *bantaran sungai* and *atas sungai* are considered leftover because it has no function, which are space 6b and 4b. The void area is also massive enough that a house could actually fit in it.

Based on the identifying process, the characteristics of in-between spaces at *Sasirangan Village* are quite diverse. To easily conclude, a matrix is made with variable codes, as follows:









Table 9. Matrix of Characteristics

	P, Ms, LU	PR	M
Regional Road	△ □ ○	MM	Asphalt
6a	△ ■ ●	SS	Wood
6b	△ □	SS	Soil & Water
5a	△ ■ ○	SN	Wood
5b	△ ■ ●	NS	Wood
5c	△ ■ □ ○	SM	Wood
4a	△ □ ●	SM	Concrete & Wood
4b	△ □	SS	Soil & Grass
4c	△ □ ○	MM	Concrete & Wood
4d	△ □ ●	MM	Concrete & Wood
4e	△ □ ○	MM	Paving Blocks & Wood
4f	△ □ ●	MM	Paving Blocks & Wood
1f	△ □ ○	SN	Wood
2f	△ □ ●	SN	Wood
3f	△ □ ●	SN	Wood
4f	△ □ ●	SN	Wood
5s	△ □ ○	SN	Wood

Source: Author (2022)

The meaning of each variable code can refer to the matrix legend below:

Table 10. Matrix's Legend

Patterns (P)	  LINEAR NON-LINEAR
Massing (Ms)	    OPEN SEMI-OPEN SEMI-CLOSE CLOSE
Land Use (LU)	  PUBLIC PRIVATE
Proportions & Relationships (PR)	NN: None – None SN: Single – None NS: None – Single SS: Single – Single SM : Single – Many NM: None – Many MN: Many – None MS: Many – Single MM : Many – Many
Materials (M)	

Source: Author (2022)

Based on the matrix analysis, it can be concluded that in-between spaces on each typology are quite diverse.

- The characteristics of in-between spaces between *tepiian sungai* typology and *bantaran sungai* typology, which is the regional road, have linear patterns, open massing, publicly use, made of asphalt, and many – many proportions & relationships.
- The characteristics of in-between spaces between *bantaran sungai* typology and *atas sungai* typology, from neighborhoods 6 to 4, all of them have linear patterns. But only neighborhood 4 has massing in common which is open mass. The land use of the in-between spaces here is varied between public and private. While almost all of the material are made of wood as the main materials accompanied by other materials such as concrete or paving blocks. Only the abandoned in-between spaces are made of soil, water, and grass.
- The characteristics of in-between spaces between *atas sungai* typology and river, which is *batang*, have all things in common except for land use. 60% of land use is private and the rest of 40% is public.

All patterns of in-between spaces at *Sasirangan Village* are linear. Almost all massing are open enclosures (76.47%) but the land use indicates most of the open enclosures are used for private needs (53.33%). The proportions are quite diverse, but a huge number of in-between spaces at *atas sungai* between rivers affect the results. Where it seems as if the single-none pattern is the most common. The materials of in-between spaces at *Sasirangan Village* are made of wood. Different materials such as concrete, paving blocks, and asphalts are only found in longer in-between spaces.

However, abandoned in-between spaces such as spaces 6b and 4b can't be identified. The unidentified in-between spaces have no benefit for residents of riverside settlements and can be categorized as negative spaces. In-between spaces need to have a clear function and boundaries for a tempt to identify the characteristics. Thus, this negative space must be revitalized as soon as possible so that it can become a positive in-between space and bring benefit to the people who live in riverside settlements. For example, space 6b can be used as a *kelotok* port or shipping docking area. If space 4b is a public space, then it can be used as a green open space or a gathering point for tourists visiting the *Sasirangan Village*.

6. References

Afdholy, A. R. (2017a). "RUMAH LANTING" Arsitektur Vernakular Suku Banjar Yang Mulai Punah. *Local Wisdom: Jurnal Ilmiah Kajian Kearifan Lokal*, 9(2). <https://doi.org/10.26905/lw.v9i2.1977>

Afdholy, A. R. (2017b). Tipomorfologi Permukiman Tepian Sungai Martapura Kota Banjarmasin. *Local Wisdom: Jurnal Ilmiah Kajian Kearifan Lokal*, 9(1), 33–50. <https://doi.org/10.26905/lw.v9i1.1865>

Aral, E. A. (2003). *Leftover Space Alanyali Tez* (p. 194). Middle East Technical University.

Azhar, J., & Gjerde, M. (2016). *Re-Thinking the role of Urban In-Between Spaces Re-Thinking the role of Urban In-Between Spaces*. December.

Azhar, J., Gjerde, M., Vale, B., & Asif, M. (2022). Perception of Urban

- Leftover Spaces: A Comparative Study of Built Environment and Non-Built Environment Participants. *Architecture*, 2(2), 231–244. <https://doi.org/10.3390/architecture2020013>
- Carmona, M., Tiesdell, S., Heath, T., & Oc, T. (2011). *PUBLIC PLACES URBAN SPACES (The Dimensions of Urban Design)* (Second). Elsevier. <https://doi.org/10.1088/1751-8113/44/8/085201>
- Creswell, J. W., & Clark, V. L. P. (2018). *Praise for the Third Edition*.
- Damayanti, V. D. (2019). Identifikasi struktur dan perubahan lanskap Kota Banjarmasin di masa kesultanan (1526-1860). *Jurnal Arsitektur Lansekap*, 5(2), 249. <https://doi.org/10.24843/jal.2019.v05.i02.p13>
- Dika, A. A. P. (2015). KARAKTERISTIK RUANG KORIDOR JALAN PANGGUNG PECINAN KEMBANG JEPUN SURABAYA SEBAGAI KORIDOR WISATA URBAN HERITAGE. 218. <http://e-journal.uajy.ac.id/id/eprint/6934>
- Ekaputra, Y. D., & Sudarwani, M. M. (2014). *Karakteristik Ruang Tunggu pada Instalasi Rawat Jalan ... (Ekaputra dan Sudarwani)*. 340, 20–25.
- Grosz, E. (1970). *Architecture from the Outside, Essays on Virtual and Real Space* (Vol. 24, Issue 3). The MIT Press Cambridge, Massachusetts London, England.
- Hadinata, I. Y., & Mentayani, I. (2018). Karakter Arsitektur Tepi Sungai Di Kampung Sasirangan Kota Banjarmasin. *Info-Teknik*, 19(1), 87. <https://doi.org/10.20527/infotek.v19i1.5144>
- Hamelin, C. (2016). *The Potential of Lost Space: A New Model for Identifying, Classifying and Transforming Urban Void Space*. 121.
- Hertzberger, H. (1991). *Lessons For Students Of Architecture* (p. 273).
- Kasarabada, D. (2020). *Urban Leftovers: Identifying and Harnessing their potential for the Agenda 2030 in Malmö*.
- Laiprakobsup, N. (2007). *INBETWEEN PLACE: THE EMERGENCE OF THE ESSENCE*. 242. <https://doi.org/10.1088/1751-8113/44/8/085201>
- Lynch, K. (1981). *A Theory of Good City Form* . 248. <https://doi.org/10.1086/496125>
- Mentayani, I. (2016). Identitas Keruangan Tepian Sungai dan Perubahannya pada Permukiman Vernakular di Banjarmasin. *Seminar Nasional - Semesta Arsitektur Nusantara 4*, 4, 17–18.
- Rachman, H. F. (2010). Kajian Pola Spasial Pertumbuhan Kawasan Perumahan Dan Permukiman Di Kecamatan Limboto Kabupaten Gorontalo. *Tesis Program Pascasarjana Magister Teknik Pembangunan Wilayah Dan Kota Universitas Diponegoro Semarang 2010*, 1–120.
- Rapoport, A. (1977). *Human Aspect of Human Form: Towards a Man Environment Approach to Urban Form and Design*, Oxford (First). Pergamon Press.
- Sastika, A., & Yasir, A. (2017). Karakteristik permukiman di tepian sungai. *Jurnal Arsitektur Dan Perkotaan "KORIDOR,"* 08, 83–88.
- Shahlaei, A., & Mohajeri, M. (2015). In-Between Space, Dialectic of Inside and Outside in Architecture. *International Journal of Architecture and Urban Development*, 5(3), 73–80.
- Trancik, R. (1986). Finding Lost Space: Theories of Urban Design. In *Landscape Journal* (Vol. 7, Issue 1, pp. 80–81). <https://doi.org/10.3368/lj.7.1.80>