SPATIAL ADAPTABILITY PATTERN OF RIVERSIDE KAMPONG COMMUNITIES IN GANG NIBUNG SAMARINDA

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ABSTRACT

Each settlement has specific characteristics and characteristics based on their respective backgrounds. Gang Nibung Samarinda is an urban kampong settlement on the banks of the Karang Mumus River of Samarinda City. Aspects of riverside settlements are different from other settlements that do not have rivers; these characteristics can be reviewed from how the community adapts to use space for housing and environment in riverside urban kampongs. The community adapts to meet its needs causing changes in the residential area and environmental room. Characteristics of the condition of the Gang Nibung settlement site, which is mainly surrounded by rivers, make the orientation of occupancy facing towards the river makes the space on the riverbank become used space for its people. This study uses field study methods in reviewing space adaptation activities in the riverside urban kampong. This research uses field study methods in reviewing space adaptation activities in the riverside urban kampong environment. The results showed that the adaptability pattern of space is influenced by the type of clarity of the action that is accommodated, the practice of openness of the design of a room, and the pattern of the relationship of space with the surrounding environment.

Keywords: *Urban Kampong; Adaptability; Space; Riverside*

INTRODUCTION

According to Setiawan (2010), the term Kampong in Urban is used to describe the shape of residential space areas built independently. Urban kampong, according to Dwisusanto (2021), is a settlement that develops spontaneously. The typology form of architecture in urban kampong has an organic shape and is formed from the architecture that follows its inhabitants. The state of urban kampong architecture with

an organic order reflects the intuitive design of each community in urban kampong by adjusting their own needs. The physical arrangement of the urban kampong emerges as an organic order produced through the social process of the community that has the characteristics of traditional life.

In the context of urban housing, space adaptation is made to suit the needs of its residents. According to Ramdhon (2015), urban kampong represents the concept of housing autonomy where kampong residents have the freedom and authority to determine the personification of their dwellings. The context of urban campong with a random pattern can be seen from the generated architecture. This pattern is reflected in the community's emancipation in building its dwellings. The needs to be opportunities for residents to plan for homes that can adapt to any changes. The needs of residents who continue to grow over time, the increasing number of residents, and other requirements as a social community. These needs in the dwelling are related to the use of space that the community can adjust to its residents.

In the context of the outdoor space environment of the city campong, generally, the outdoor space owned by the city campong is limited due to the dense number of dwellings. Outdoor play in the context of the urban kampong is usually limited to street/alley space. However, according to Pramuditho (2019), in Social Activity, Community can still realize the values of togetherness and interaction between residents in the urban kampong amid the limitations of open space in the urban kampong. The community must adapt to the rules of outdoor space to make the street/alley space for their social activities. The community adjusts the street/alley space in the urban kampong to provide various forms of exercise and dynamic social interactions for the district to make it an ideal social space.

According to Dahliani (2019), in riverside settlements, there is a dynamic relationship between residents, settlements, and rivers. Riverside settlements also have distinctive characteristics and distinguish them from settlements that do not have rivers in their neighborhoods. Therefore, in the riverside community, domestic activity is limited to the inside of his house and outside the house. This condition makes the space on the riverbank a used space—domestic activities outside the home merge with social movements that use the riverbank as a space.

Gang Nibung is an urban kampong settlement located on the Karang Mumus Samarinda river banks. The majority of Gang Nibung people work as traders and market workers. The settlement location close to the primary market Segiri Samarinda makes community activities in Gang Nibung continue to live 24 hours. In addition, the location of the kampong bordering the river makes the shape of the urban kampong site curve following the river. This condition causes the orientation of the direction of occupancy in Gang Nibung Samarinda to face the river. Alley space in the Gang Nibung neighborhood is directly related to the existing area on the riverbank.

Based on the background above, the study aims to examine spaces adapted by the community in kampong settlements on the Nibung Samarinda Gang River banks. The adaptability of space is studied based on the characteristics of the riverside urban kampong described in the background. Aspects of urban kampong occupancy arise from the community's emancipation in building their dwellings, social activities in conditions of limited outdoor space, and space on the riverbank.

THEORY / RESEARCH METHODS

The Process of Adapting to the Environment

Haryadi (2014) states that behavior is an approach in which architecture emphasizes the interrelationship of two-way communication between space and humans and the people who utilize or utilize the area. Behavior in the realm of architecture discusses the relationship of human behavior with the built environment in which they live. Human behavior in shaping architecture is the process of humans forming buildings that then shape human behavior. Human behavior after is developed due to architecture that has been created, humans re-form architecture that has been built before based on behavior that has been formed, and so on. The principle of adaptation between human behavior and its environment is divided into two, namely:

1. Human behavior adaptation to their environment. Humans can learn from experience; changes in behavior to fit with their environment. So, in other words, humans can be educated, trained, and self-taught to adapt to their new environment.
2. Adapting the environment to suit humans. Human always tries to adjust the setting to suit the circumstances he wants. The process of adjusting to the environment involves designing based on human behavior.

According to Adger and Vincent (2005), society's adaptability is determined by the community's financial ability, knowledge, experience, and response to the location of the environment in which they live. The community's knowledge, experience, and response are determined by interacting socially with citizens and ethics in their environment. People's financial ability can not be separated from their efforts to earn income.

According to Nurdiani (2010), the community in urban kampong settlements in Indonesia has a lower-middle economy. There are three spatial conditions of human settlement that can be classified according to Heryati (2013) by adapting the live cycle theory from Arendt (1987) from community settlement life, namely the comfort of dwelling, the comfort of working, and the comfort of human relationships.

Adaptable Space

According to Kronenburg (2007), adaptability in architecture is an architecture that can respond to changing conditions over a long period. The ability of architecture to adapt to changes that include different uses, different possible configurations of spaces and functions, and technological updates without disrupting buildings, environments, and ongoing activities. The principle of adaptable space from Kronenburg (2007) is to design the ability of space to be utilized in a multifunctional way. An area that can adapt to changing needs both socially and technologically. Adaptability is interpreted when human needs change over time, and humans can also adjust space to meet these needs and adapt the space pattern to meet those needs.

Adaptability in the use of space is used against changing needs in the present and the future. Area needs to have the ability to adapt to the changes that occur to accommodate the ever-changing human needs. Space grows along with its users over

time. According to Brand (1994), humans did not complete architecture by the time human completed it, but instead, a new architectural life emerged into the space in which it occupied and used. The element of time is inseparable from how an area changes in adjusting to the changing needs of its users. The ability of space to adapt is limited to the power or not to adjust the length to accommodate the changing needs of its users.

In adaptability, space consists of 6 layers, as Brand (1994) described. The six layers (Figure 1) are sorted from the hardest to adjust to the easiest to adapt. The six layers include:

1. Site is the fundamental basis of establishing a space, is united with its surrounding environment, and has the longest adjustments.
2. Structure is the foundation and buffer element of spaced load distribution and rarely changes or can be adjusted.
3. Skin is the exterior of the space and can be adjusted as a necessity for a high display standard or with a simple look
4. Service is the internal organs of a space that work to do the activities inside, such as cables and pipes. This section follows technological advances and can be replaced entirely but rarely or partly but quite often.
5. Space Plan is a layout that affects the inside of the space, such as inner walls, partition systems, floors, and ceilings.
6. Stuff can be moved easily or called furniture, such as tables, chairs, and cabinets.

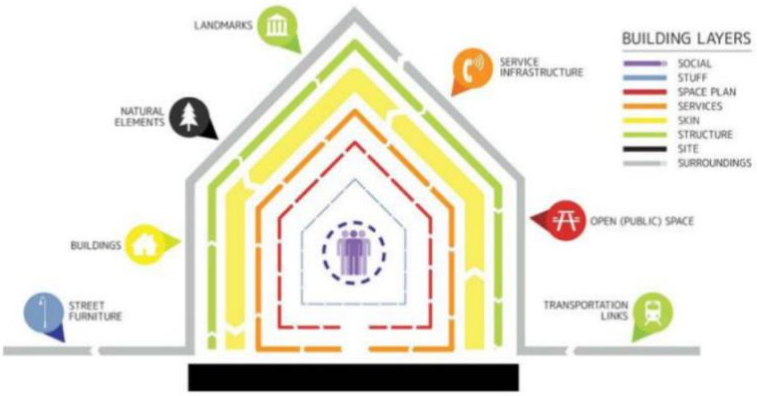

Figure 1. Layer Adaptability Diagram of a Space
Source: Brand (1994) in Schmidt III, 2021

Methodology

This research is based on a field study to observe how the urban kampong community Gang Nibung Samarinda adapts to the existing space in Gang for the convenience of activities in living, working, and human relationships. Data was collected through direct observation, discussions with the community, and photography of the existing state of affairs at the location. Data collection directly in the field by paying attention

to aspects of adaptation in the use of space in residential space, alley space, and space on the riverbank. The observation search of the adaptability pattern of space use in the urban kampong is illustrated with schematic diagrams and descriptions of the findings on observation of the context of the study. The observation was conducted twice, namely in March 2021 and August 2021. The context of the research location is described in Figure 2 below.

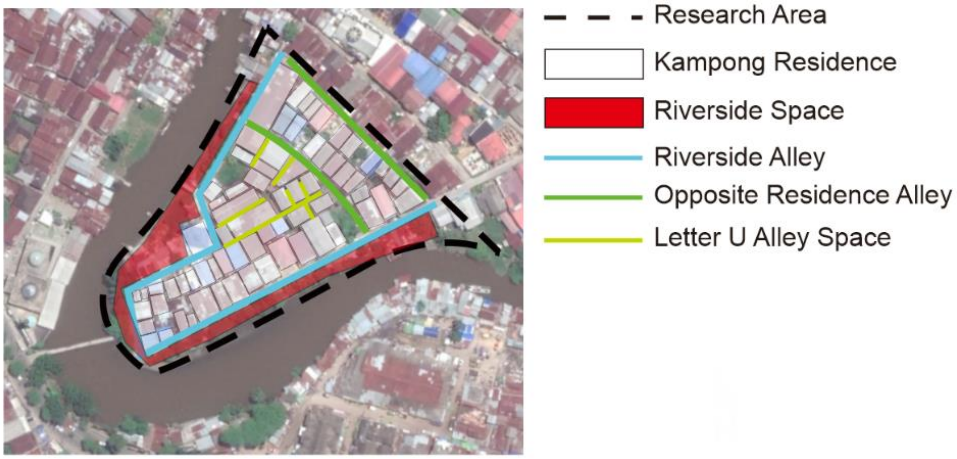

Figure 2. Context of The Research Location of Urban Kampong Riverside Gang Nibung Samarinda
Source: Google Earth and Author Sketch, 2021

Identifying research context is associated with how society performs space adaptability activities based on the concept of adaptable space from Kronenburg (2007). Field study explanation focuses on the background in a community in performing the adaptability of space, namely economic experience, knowledge, and response to the surrounding environment (Adger & Vincent, 2005). Then space adaptability activities are analyzed again by reviewing the influence on any element adapted based on the adaptable building layers of the Brand (1994). The review results are classified based on three activities of comfort according to Heryati (2013), namely comfort in living, working, and human relationship.

RESULT AND DISCUSSION

The characteristics of adaptability activities in using space are classified according to the context of their location. The classification of research contexts is divided into three:

1. The context of domestic space in occupancy
2. The environmental context of alley space
3. The context of used space on the riverbank.

Residential Context: Adaptation of Domestic Space in Occupancy

A review of the process of community behavior in adapting the dwelling was conducted by making observations to find the pattern of adaptability of Gang Nibung Samarinda occupancy. In making observations that need to be reconsidered in the context of Gang Nibung, the majority of the people are traders and market workers.

1. The adaptability of residential, domestic space based on the comfort of the living. The most prominent space adaptation in the community residence of Gang Nibung is a multifunctional living room. Only based on carpets with television furniture and living room cabinets accommodate many of the needs of its residents. The living room during the day can be used as a shared dining room, study room, and even just relaxation while watching television. At night this living room can also be a bed for family members who do not have a private room. The house's condition in Gang Nibung, which is the majority of simple dwellings with an area of about 5-8 meters wide with a length of about 10 meters, makes the need for a small bedroom. As a result, the middle room is transformed into a bedroom at night.
2. The adaptability of residential, domestic space based on the comfort of working. The use of housing Gang Nibung Samarinda not only as a place to live but also as a place to make a living makes some dwellings in Gang Nibung also used as a place of trade or services. Field studies have found that some houses provide space to sell in front of their homes. The room was adapted into a shared space for the arrival of buyers. Selling activities include simple food stalls, daily necessities stalls, meatball carts, ice carts, crop sales, and motorcycle workshop services. Aspects of market traders living in Gang Nibung, as in Figure 3, some residents store their wares in the main room for sale in Segiri Market. The space is also adjusted, such as warehouses where goods are stored or the rest that is not sold.

Figure 3. Results of Residential Field Studies for Selling and Storing Goods
Source: Author, 2021

3. The adaptability of residential, domestic space based on the comfort of human relationship.
   The residence in Gang Nibung does not have a specific living room. The residential design generally provides a barrier between the living room and other spaces in

the home. This condition is so that the area can be more private and only for nuclear family members. However, it is not visible in the Gang Nibung residence, so if neighbors visit it directly to the home's main room. Guests who visit partly sit on the front yard terrace, and even the main room also welcomes guests. Social activities on the residential deck of Gang Nibung are seen in Figure 4 below.

Figure 4. Social Activities on The Terrace
Source: Author, 2021

Other social activities, in addition, occur in the front room and the main room and are also found in the backroom area of the residence. Most residential settlements' orientation extends and turns their backs on each other, making the backroom between each dwelling also connected. As shown in Figure 5 below, some houses have a shared backroom, such as a laundry room. This condition makes the back room in the Nibung Samarinda Gang residence space for social relations between its citizens.

Figure 5. Shared Backroom
Source: Author, 2021

The results of field studies by reviewing the process of adaptation of community occupancy to its environment causes changes in the pattern of adaptability of space. The method of residential adaptability in Gang Nibung Samarinda applies several ways: removing barriers in the front yard (terrace), open layout plan in the main room (living room), and the backroom owned along with other dwellings. The classification of space adaptability activity is described in Figure 6 with a schematic as follows.

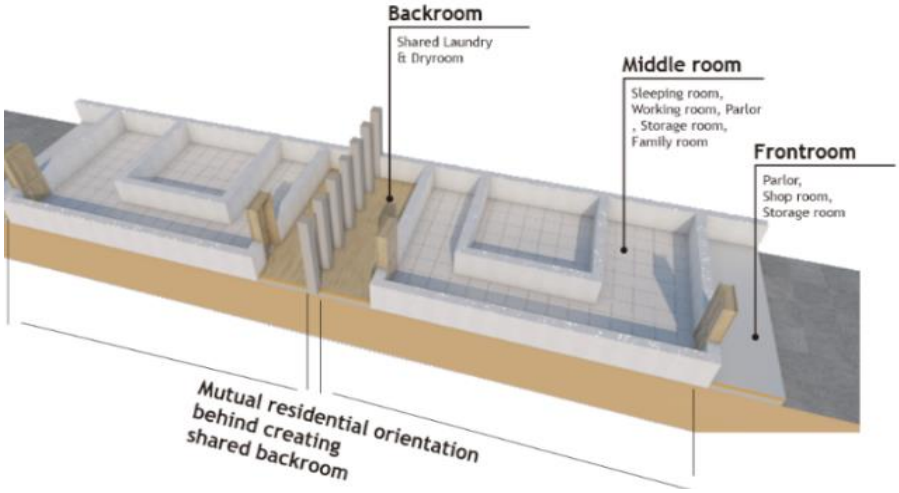

Figure 6. Characteristics of Domestic Space Adaptability Patterns in Gang Nibung Samarinda Occupancy
Source: Author, 2021

Environmental Context: Adaptability of Alley Space as a Social Space

The classification of alley space in Gang Nibung, as depicted in Figure 1 in the previous sub-study, was divided into three, namely the alley space that is on the riverbank, the continuous environmental alley space and is in the middle of the opposite dwelling, and the alley space shaped like the letter U that connects a few houses only. In contrast to the residential context used to live in the alley space, the comfort that will be studied is comfort in work and more comfort in conducting social relations between people.

1. The adaptability of alley space based on the comfort of working .
   The utilization of Gang Nibung alley space is seen in the activities of working communities that expand alley space. Some residences in Gang Nibung, which have a small front yard, use alley space so that the alley space is used to continue the area of selling space.
2. The adaptability of alley space based on the comfort of the human relationship.
   Alley space in Gang Nibung can be used as a social activity by the community. The pattern of residential arrangements in Gang Nibung affects aspects of social space formed in alley spaces. The alley space seems to be multifunctional in the shared territory. From field studies on people's behavior in alley spaces in Gang Nibung Samarinda, ambiguity is evident from the alley space. The ambiguity of the alley space causes the alley space to look multifunctional and shows the boundaries of transparent space. The classification of ambiguity is seeing some dwellings passed by the alley space. Like a particular alley space that seems to make its area, it still has a multifunctional space aspect for the residential space given by the alley space. This is seen in Figure 7 how to put things together without the need to think about the privacy of the goods and ownership itself.

Figure 7. The condition of the alley space in Gang Nibung
Source: Author, 2021

The connecting space between occupancy and transparent alley space makes society can do social activities on the terrace of each residence. People sit on their porches — in each house to have social interaction. The majority of homes have a small space of about 1-2 meters for terraces and front yards. Even in some residences, the front wall of their houses is directly connected to the alley space without a connecting room.

From the observation of the discovery of adaptability patterns in using alley space in Gang Nibung, the relationship between the connecting area between occupancy and alley space showed a habit of using terraces or front yards as an open place for the people of Gang Nibung Samarinda urban kampong. Most Gang Nibung dwellings' condition that does not use the fence as a barrier marker of the territory of a residence makes it as if the front yard or terrace of Gang Nibung occupancy can be accessed freely by anyone. The expected results of alley space adaptability are described in Figure 8 below.

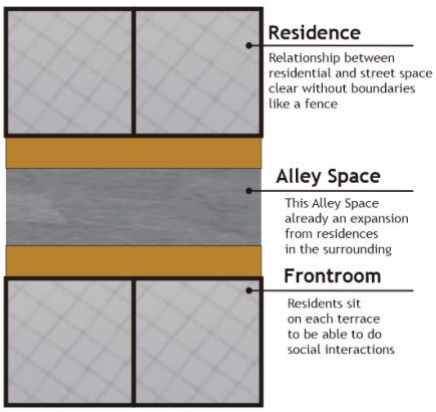

Figure 8. Characteristics of Adaptability Patterns of Use of Space in Alley Spaces in Gang Nibung
Source: Author, 2021

Riverside Kampong Context: Used Space on The Riverside Area

Characteristics of the research site in Gang Nibung Samarinda are surrounded by the Karang Mumus River, as depicted in Figure 1 of the previous sub-study. This condition makes the orientation of the building face towards the river. The alley space surrounds the settlement of Gang Nibung Samarinda, and the shape of the alley space as if fused with the riverbank. The observations found several activity patterns using alley spaces as social activities in the urban kampong.

1. The adaptability of riverside space based on the comfort of working.
   The riverside room in Gang Nibung Samarinda is in front of the community residence. This condition makes space in the riverside area used to put items that they do not put enough in their homes, such as merchandise sold. In the riverside area, a collection of carts was used by the Gang Nibung to bring their merchandise to the Segiri market. The adaptability is shown in Figure 9 below.

Figure 9. Riverside Area Used as a Place of Goods
Source: Author, 2021

2. The adaptability of riverside space based on the comfort of the human relationship
   Social space on the banks of the river is not formed directly but rather is the result of adaptation from its inhabitants. From the observations of field studies, the social activities seen are children who play using alley space and riverbanks as their place to play—utilization of riverside space as a shared clothes sunroom located along the riverbank room Gang Nibung Samarinda—in addition, seeing from the characteristics of Gang Nibung, which is active 24 hours as a kampong adjacent to the people's market makes, the riverbank space Gang Nibung built non-permanent huts as a place of social activity, especially for men who use it at night. The condition of social activity in using space on the riverbank can be seen in Figure 10 below.

Figure 10. Riverside Area Used as a Place of Social
Source: Author, 2021

Characteristic Adaptable Space in Gang Nibung Samarinda

The research results from adaptable space observations in Gang Nibung Samarinda showed that the higher the openness of space, the higher the potential for the space to be adapted. The meaning of openness here is not the design of open space but rather the view of the space to be 'opened' by its residents so that the adaptation process can be done. In the context of domestic occupancy from the Field Study Gang Nibung Samarinda, the main room is the most frequently adopted space by its residents. This condition is seen in multifunctional domestic activities by its residents in the main room, which then becomes a space for sales activities, storage, and even sleeping in the main room.

In the context of occupancy based on field studies, the front room (front yard) and backroom (usually laundry room & clothes drying room) in Gang Nibung also showed their adaptability activity. The residential front room in Gang Nibung is related to alley space, while the back room is related to other residential back rooms. Based on the field study of the front room, most Gang Nibung dwellings do not use high fences to strengthen the occupancy limit with alley space. The fence in the front yard of Gang Nibung's residence is only a fence with a small height that sometimes people gather and sit there. Even a dwelling does not have a wall and is directly connected to the alley space. While in the back room, part of the backroom of Gang Nibung occupancy becomes one with the back room of other dwellings. In general, the back room of the residence is private and used to store personal items. But in Gang Nibung Samarinda, the back room can be a space that is used and adjusted together. Based on the review results, the potential of the front and back rooms appears and can be adapted by its occupants because they remove barriers to the surrounding space so that openness in the front and rear areas gives rise to the potential of occupant adaptability activities.

In outdoor spaces based on field studies, alley space in the urban kampong has a pattern of adaptability as a social space. The function of the alley space as a means of circulation with the design of open space makes the alley space a multifunctional means. Based on the monitoring in Gang Nibung, the potential of gang space can be adjusted by the community can occur because, in the urban kampong, the alley space has an ambiguous space between private and public. This ambiguity makes the alley space a shared social space for the community in the context of the urban kampong and can be adjusted together by the community. While in the back room, part of the backroom of Gang Nibung occupancy becomes one with the back room of other dwellings. This condition makes the back room into a space that is used and adjusted together, wherein in most residential back rooms, there is private property. Based on the review results, the potential of the front and rear rooms appears and can be adapted by its occupants. They remove barriers to the surrounding space so that openness in the front and backspaces gives rise to the potential of occupant adaptability activities.

In the context of space on the riverbank, the condition of the Gang Nibung settlement, which is as large as surrounded by the river, produces space on the

riverbank that the community can utilize. Based on the results of field studies, riverside space is adapted into a space resulting from the expansion of domestic space from occupancy and social space. Riverside space is used for merchandise storage, clothes sunroom, vehicle parking, playgrounds for children, and guard posts. The riverside space can adapt to the space that is the largest of the entire space. There are these conditions because there is no transparent allocation of activities to accommodate. Riverside space is different from other spaces, such as alley spaces for circulation activities and residential front and rear spaces to connect with alley and residential spaces.

Based on the results of field studies that have been conducted and then associated with the criteria of designing. The adaptability of space, it is concluded that the pattern of adaptability of space affects:

1. The clearer the space activity type, the smaller the potential adaptability. The potential adaptability of space in domestic activities is smaller than that of social movements. Based on the results of field studies, residential space is the smallest potential adaptability to occur in residential spaces because the activities accommodated are related to domestic activities. In contrast, the alley space accommodates social and circulation exercises. The space on the riverbank becomes the most unclear space for its actions, so In Riverside can do any activity, and the potential for adaptability activities is located there.
2. The more open the design of a space, the greater the potential for adaptability. The potential adaptability of creating a closed space will always be smaller than the available space. Based on the results of field studies, although the occupancy space is closed, occupancy adaptability can still be done with the openness of the layout plan. Adaptability in the front and rear areas is done by removing barriers to their open nature. Alley space and riverbank already have an available design to do any adaptability activity easily.
3. The more space has to do with the space/environment / around it, the greater the potential adaptability of space. This condition can be seen from how much influence one space has over other areas. The existence of riverside space has the most significant influence because of the presence of adaptability activities in the main room of domestic occupancy (storing merchandise), constancy activities in the front room &back of occupancy (interaction between neighbors), and social activities of alley space (children play) can all be done on the riverbank.

The adaptability patterns resulting from the studied adaptability pattern are shown in Figure 11 below.

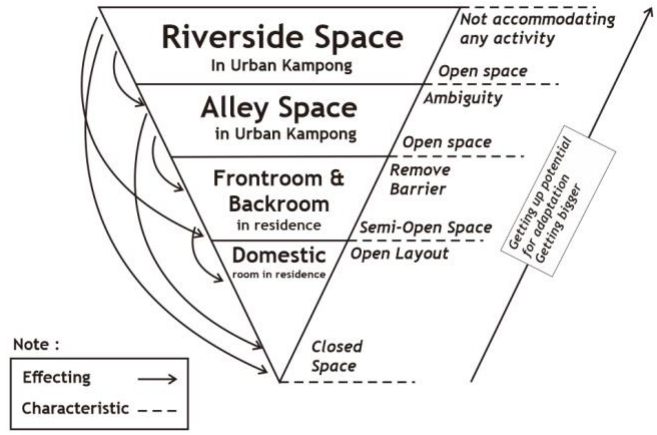

Figure 11. Adaptability Pattern Research Results Scheme
Source: Author

CONCLUSIONS

Based on the study results, several adaptability patterns were used based on the characteristics of the urban kampong community by the river. The design is grouped based on six building layers from Brand (1994) to adapted aspects. The adaptability pattern of research results is grouped in Table 1:

Table 1. Adaptability patterns in each context of space

Space Context	Adaptability Patterns	Influence of Building layers (Brand, 1994)
Domestic room in the residence	Open Layout	Stuff Space Plan
Front & backroom in residence	Removing the barrier between occupancy and alley space	Skin Structure Service
Alley Space in Urban Kampong	An ambiguity of play but still reserved for circulation activity	Site
Riverside Space in Urban Kampong	An ambiguity of play but not assigned to any activity	Site

Source: Author, 2021

Based on the research results, several aspects can determine how much potential can be done by a space to perform adaptability activities. These aspects include:

1. The more specific the activity for the space, the smaller the potential adaptability that humans can do from the type of activity.
2. From the openness factor of space, the greater the openness of space, the greater the

potential adaptability that humans can do in the area.

3. From the relationship factor with the surrounding environment, the more space has a relationship with the environment/space around it, the greater the potential adaptability of space.

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