A TYPOLOGICAL ANALYSIS OF HOUSES AND PEOPLE-GATHERING PLACES IN AN URBAN RIVERSIDE SETTLEMENT

A Case Study in the Musi Urban Riverside Settlement, Palembang City, Sumatra, Indonesia

都市の川辺居住地における住居と人々の集会場所の類型的分析

インドネシア, スマトラ島, パレンバン市のムシ川辺居住地におけるケーススタディ

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This study is aimed to identify the typology of houses and people-gathering places in the Musi urban riverside settlement in order to consider some principles for improvement programs. From the investigation results this study identifies that there is no relationship between building area and family size or income in both raft and pillar houses. However in typological analysis based on room function, the room arrangement DK-GL/GLS-S (Dinning+Kitchen, Guest+Living/Guest+Living+Sleeping, Sleeping) is the most popular pattern both types of houses. We then found that there were three rules in arranging rooms in the houses. We also found that there were three types of people-gathering places. This study also recognized that inhabitants of the raft and pillar houses constituted a community using some places for doing outdoor activities together.

Keywords: *Typological Analysis, Houses, People-gathering Places, Urban Riverside Settlement, Palembang City, Musi River*

類型的分析、住居、人々の集まる場所、都市川辺居住地、パレンバン市、ムシ川。

1. Introduction

As an archipelago country, Indonesia has many coastal areas. Together with major rivers on some islands Indonesia has many waterfront areas. Many of them have become urban areas. Since the beginning of the urbanization in this archipelago, the coastal zones and riverfront/riverside area have also developed as attractive places for settlement.

In Indonesian area, there are only few riverside settlements having both raft houses and pillar houses¹. Recently the number of raft houses has decreased². One of the few settlements having both pillar and raft houses is the Musi urban riverside settlement located in Sumatra Island. The Musi urban riverside area along with its raft houses will be developed as a waterfront tourist spot³.

The increase of demand for urban land for settlement that is not accompanied by the increasing ability of some segments of the population to acquire suitable land has contributed to the growth of poor urban residential areas in the riverside areas⁴. Those areas lack water supplies, reliable walkways, housing quality, sanitary facilities, and waste management facilities. Poor quality of the drinking water, the sanitation and disposal system can cause illnesses such as diarrhea, cholera and typhus⁵. Nowadays, the

Musi urban riverside settlement also faces those problems and there are still no guidelines to overcome them⁶.

1.1. Objectives of the Study

Each effort of improvement program should maintain the positive characteristics of the area⁷. On the other hand each area such as urban kampung⁸ has its own characteristics which varies with its location, inhabitant's income, migration, spatial pattern and its history⁹. Topographically, a riverside settlement has different conditions from the ordinary urban landed kampung. That condition may cause the inhabitants should have local habitual in order to cope with their problems. One of some basic local habitual is how inhabitants use space including indoor and outdoor. Urban kampung's inhabitants usually take approximately 2 hours/ a day, gathering and chatting with their neighbors¹⁰. With these facts, this study aims to investigate the typology of houses based on the function and people gathering places in order to consider principles for the improvement program.

1.2. Methodology

First, the investigation was carried out with general observation along the Musi River for the purpose of identifying the area having greater number of raft houses. This observation

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found that most of the raft houses existed in the Seberang Ulu Area along the Musi River from Ampera Bridge to Ogan Bridge. The observation also found that most of the raft houses were located in areas where the Musi River meets Kedukan River and Musi River meets Ogan River (See Fig. 1).

Investigation then selected RT¹¹1 Kelurahan¹² Kertapati located near the Musi and Ogan River confluence as a study location, because the number of raft houses in that RT was higher than in other RT areas. For the same reason, we also selected RT 10 Kelurahan 5 Ulu, located near to where the Musi and Kedukan River meet, as another study location.

In this investigation we interviewed family members or household heads. We also made measurements and sketches of the raft and pillar houses, found people-gathering spaces and noted the type of building material, house lighting, water supply and the daily facilities in the houses such as water closet and places for washing the bodies, clothes and kitchenware.

Field surveys were carried out in 1996, 1997 and 1998. In carrying out the survey, four students of the Department of Architecture, Palembang Institut of Engineering assisted us. In RT 1 Kelurahan Kertapati, there were 5 landed houses, 27 pillar houses and 18 raft houses, and we observed 21 pillar houses and 18 raft houses. In RT 10 Kelurahan 5 Ulu, there were 36 pillar houses and 14 raft houses, and we observed 31 pillar houses and 14 raft houses. Those in the other pillar houses i.e. 6 households in RT 1 Kelurahan Kertapati and 5 households in RT 10, Kelurahan 5 Ulu could not be observed because some inhabitants did not permit it and the others were not at home when the observations were being carried out. We then observed all the found people-gathering places in those two areas. Both of the kelurahan, where the survey was carried out, were located in the Sub-District of Seberang Ulu I, Palembang Municipality.

Based on the results of the investigation, we compared the condition of raft and pillar houses for the purpose of clarifying the differences of both houses. We also compared the condition of both houses to Palembang urban housing condition in order to recognize the quality level of the riverside houses to Palembang urban housing. And we did a typological analysis of the room arrangement and the people-gathering places with the intention of identifying the types of the houses and people gathering places.

1.3 Review of Literature

Urban kampung has been recognized as one of some characteristics of Indonesian urban area, however kampung has poor sanitation. In addition it has given characteristics of urban housing tradition i.e. the life of urban economic for lower classes, informal sectors¹³.

In 1989, Shuji Funo investigated the transitional process of kampung and kampung housing system in Surabaya City. His study offered some considerations on the kampung housing system, towards alternative strategies for urban renewal after KIP,

Fig. 1 Location of Survey Area

Kampung Improvement Program¹⁴. In 1989 Haryadi did study of a Yogyakarta kampung focusing on residents' strategies for coping with environmental press: relation to house-settlement systems¹⁵. Some studies about Evaluation of Kampung Improvement Program also have been carried out (Nick Devas, 1981; Johan Silas, 1982; John L Taylor, 1985).

In 1993, Sudibyo, Hatmoko and Sarwadi did a study on community participation systems of the environmental management in kampung, located along the Code River in Yogyakarta¹⁶. The Code River was not navigable and not a workplace for riverside inhabitants. In 1998, Alvianson also conducted research along the Code River¹⁷. His study concerned community participation in managing settlement environment infrastructures. Alvianson's study observed an area broader than Sudibyo's study.

In 1998 Bakti Setiawan also did a study of kampung located along the Code River, Yogyakarta¹⁸ with a different focus. His study focused on how kampung people gained resources and security, despite their illegal status in kampung.

In 1997, Ari Siswanto investigated raft houses in the Musi riverside area¹⁹. He focused on the characteristics of houses and socio-economic characteristics of the inhabitants. His study includes physical and social economic aspects and devotes a part of his research toward the Palembang Traditional House. This study however provided field survey data rather a detailed analysis. Unlike the Code River in Yogyakarta, Musi River in Palembang City constituted a navigable river. The river was also a workplace for the riverside inhabitants.

In 1998 Zuber Angkasa studied the territoriality of the rafting settlement area over the estuary of Ogan in Palembang City²⁰ focusing on how inhabitants of raft houses control and manage the area surrounding their houses. In 1999, Aniaty Yulisma did study on urban kampung in Palembang City. The study covered area in riverside and landed settlement and focused on system of activities and setting of kampung inhabitants²¹.

Based on the facts above, we can say that a detailed study of physical characteristics of Indonesian riverside settlement has not yet been carried out. Zuber's study includes only raft house areas and focuses on the inhabitant's method of controlling the area surrounding their houses. On the other hand, Yulisma's study investigates the system of activities and setting of inhabitants excluding raft houses. This study considering the physical characteristics of the riverside settlement including raft and pillar houses therefore contributes to revealing the urban riverside settlements comprehensively.

2. Physical Conditions of Housing in the Musi Urban Riverside Area and Palembang City

This study found that the average building area of raft houses was 44m² considerably smaller than that of pillar houses (53m²)

and the average building area of urban houses in Palembang City (58m²). The same conditions also occurred on the building area per person (See Table 1-Item A).

Table 1 Physical Conditions of Houses in the Musi Urban Riverside Area and Palembang City

Items	Musi Urban Riverside Area ¹		Palembang City ²
	Raft Houses	Pillar Houses	
(A) Building Area	44 m ²	54 m ²	58 m ²
Family Size	5.9	5.6	4.9
Building Area/Person	7.4m ² /person	9.6 m ² /person	11.8 m ² /person
(B) Floor (the greater part of floor materials)			
Ceramics / Marble	0(0.0%)	0(0.0%)	21063 (8.5 %)
Terrazzo	0(0.0%)	0(0.0%)	29778 (12.0 %)
Cement Plaster	0(0.0%)	0(0.0%)	102902 (41.3 %)
Wood	32 (100.0%)	52 (100.0%)	90254 (36.25 %)
Bamboo	0(0.0%)	0(0.0%)	622 (0.3 %)
Others	0(0.0%)	0(0.0%)	4357 (1.8 %)
Total (%)	32 (100%)	52 (100%)	248976 (100.0 %)
(C) Wall (the greater part of wall materials)			
Masonry Wall	0(0.0%)	0(0.0%)	104346 (41.9 %)
Wood	32 (100%)	52 (100%)	141817 (57.0 %)
Bamboo	0(0.0%)	0(0.0%)	921 (0.4 %)
Others	0(0.0%)	0(0.0%)	1867 (0.8 %)
Total	32 (100%)	52 (100%)	248976 (100.0 %)
(D) Roof (the greater part of roof materials)			
Concrete	0(0.0%)	0(0.0%)	10507 (4.2 %)
Wood Sheets	0(0.0%)	0(0.0%)	8092 (3.3 %)
Asbestos/ zinc plate	25 (78.1%)	38 (73.1%)	78652 (31.6 %)
Roof-tile	0(0.0%)	12 (23.1%)	130402 (56.0 %)
Palm Fiber	0(0.0%)	0(0.0%)	299 (0.1 %)
Palm Leaves	7 (21.9%)	2 (3.8%)	12026 (4.8 %)
Others	0(0.0%)	0(0.0%)	0(0.0%)
Total	32 (100%)	52 (100%)	248976 (100.0 %)
(E) Foundation			
Wood	0(0.0%)	52 (100%)	-
Bamboo	32 (100%)	0(0.0%)	-
(F) Type of House Lighting			
Supply by State Electrical Comp	32 (100%)	52 (100%)	221016 (88.8 %)
Supply by Non-State Elec. Comp.	0(0.0%)	0(0.0%)	1245 (0.5 %)
Kerosene Lantern	0(0.0%)	0(0.0%)	26416 (10.6 %)
Others	0(0.0%)	0(0.0%)	299 (0.1 %)
Total	32 (100%)	52 (100%)	148976 (100.0 %)
(G) Type of Drinking Water Source			
Water Faucet	0(0.0%)	0(0.0%)	161187 (64.7 %)
Well	0(0.0%)	0(0.0%)	64485 (25.9 %)
River Water	29 (90.6%)	49 (94.2%)	21188 (8.5 %)
Rain water	0(0.0%)	0(0.0%)	299 (0.1 %)
River & Rain Water	3 (9.4%)	3 (5.8%)	-
Others	0(0.0%)	0(0.0%)	9237 (3.7 %)
Total	32 (100%)	52 (100%)	248976 (100.0 %)
(H) Type of Water Closet /WC			
WC with Septic tank (in a house)	0(0.0%)	0(0.0%)	130214 (52.3 %)
Shared WC with Septic tank	0(0.0%)	0(0.0%)	25819 (10.4 %)
WC without Septic Tank (in a house)	0(0.0%)	16 (30.8%)	36724 (14.8 %)
Shared WC without Septic tank	0(0.0%)	0(0.0%)	17179 (6.9 %)
Public WC	0(0.0%)	0(0.0%)	1867 (0.8 %)
River	32 (100%)	36 (69.2%)	30201 (12.1 %)
Others	0(0.0%)	0(0.0%)	7121 (2.9%)
Total	32 (100%)	52 (100%)	248976 (100.0 %)

Source: *1: Field Survey, 1997, *2: Social Indicator of South Sumatra, 1994

In the Musi riverside settlement, the raft and pillar houses used wood for walls and floors. Usually the kind of wood used was Meranti. Differing from condition in the riverside settlement, 41.3% of the houses in Palembang City used cement plaster for floor materials and 36.3% used wood and the remaining 22.4% used ceramic, terrazzo and bamboo. For wall materials 41.9% of those houses used masonry wall and the 57.0% used wood. Only 0.4 % of the houses used bamboo (See Table 1-Item B, C).

Most of the raft houses (78.1%) and pillar houses (73.1%) used corrugated zinc plate for roof materials. The remaining 21,9 % of raft houses used Palm leaves and 23.1% of pillar houses used roof tile. In Palembang City 56.0% of the houses used roof tiles, 31.6 % used asbestos/zinc plate and 18.6% used concrete, wood sheet and Palm fiber/leaves (See table 1-Item D).

All raft houses used bamboo for rafted foundation. The diameter of bamboo usually was 10-15 cm. All pillar houses used wood for foundation. The kind of wood used was Unglen or

Tembesu. There was no data about foundation material of Palembang urban houses.

100% of the raft and pillar houses used lighting power from the state electrical company. In Palembang City, 88.8% of the houses used lighting power from state electrical company and 10.6% used kerosene lanterns. The remaining houses used lighting from a non-state electrical company (See Table 1-F).

The greater part of the raft (90.6%) and pillar house (94.2%) inhabitants used river water as drinking water. They took water from the Musi River, stored it in water buckets for settling of sediment, and then boiled the water before they drink it. Only 9.4 % of raft house inhabitants and 5.8% of pillar house inhabitants used rainwater in rainy season. In Palembang City, 64.7% of houses had water faucets from the government municipality, 25.9% took water from wells, 8.51% used river water and 0.1% used rainwater on rainy days (See Table 1-Item G).

75.0% of the raft houses had WC (water closet) without a septic tank in their houses and 25.0% used shared WC without a septic tank on the river. In pillar houses 69.2% of houses used shared WC without septic tanks on the river, and the remaining 30.8% had WC without septic tank in their houses. In Palembang City, 52.3% of the houses used WC with septic tank, 14.8% had WC without septic tank, 10.8% used shared WC with septic tank, 6.9% used shared WC without septic tank and 12.3% threw their excrement away on river (See Table 1-Item H, and Table 2). This study also noted that there was no garbage collection system in the riverside area. The inhabitants usually threw garbage away into the river or to the area surrounding their houses. We found a dirty environment, particularly under the houses.

Most of the raft houses (96.9%) had areas without roofs at the side/back of the house so that they can bathe, and wash clothes and kitchenware. Differing from raft houses, most of pillar houses do not yet have areas for washing in their houses. Most of the inhabitants used shared-washing places on the river for washing activities (See Table 3).

Table 2 Type of Using WC by Inhabitants

Type of WC	Number of Users	
	Raft Houses	Pillar Houses
Shared WC	24 (75.0%)	36 (69.2%)
WC in the houses	8 (25.0%)	-*
Total	32 (100.0%)	52 (100.0%)

Source: Field Survey, 1997

Note: *-: 30.8% of the pillar houses having WC in their houses located on the riverbank area.

Table 3 Type of Washing Place

Type of washing places	Number of Users	
	Raft House	Pillar House
Body		
At the side/back of the house	31 (96.9%)	6 (11.5%)
Shared-washing place	1 (3.1%)	42 (80.8%)
Others*	-	4 (7.7%)
Clothes		
At the side/back of the house	31 (96.9%)	9 (17.3%)
Shared-washing place	1 (3.1%)	43 (82.7%)
Kitchen Ware		
At the side/back of the house	31 (96.9%)	19 (36.5%)
Shared-washing place	1 (3.1%)	33 (63.5%)
Total of house	32 (100.0%)	52 (100.0%)

Source: Field Survey, 1997

Others *: bathroom in the house

3. Typology of Room Arrangement

There were two types of raft and pillar houses. The first one was solely for living, and the second one for both living and working. We found that in raft houses, the inhabitants used separated houses for working activities such as making boats, repairing boat machinery and selling gasoline. In pillar houses, the inhabitants used a room (a part of the house) as a stall selling daily goods such as bath soap, laundry soap, cooking spices, food and vegetables (See Table 4 and Fig. 2).

Table 4 Function of House

House Type	Function of House		Total
	Living Place	Living & Working Place	
Raft House	48 (92.3%)	4 (7.7%)	52 (100%)
Pillar House	29 (91.6%)	3 (9.4%)	32 (100%)

Source: Field Survey, 1997

Fig.2 Type of House According to the Function

This study tried to analyze the correlation between building area and family size or per capita income in both types of the houses. This analysis was done for the purpose to understand the level of correlation between them so that it may be used in doing typological analysis of the houses²² (See Fig.3, Fig 4, Fig. 5 and Fig. 6).

Fig. 3 Graph of Correlation between Building Area and Family Size in Raft Houses

Fig.4 Graph of Correlation between Building Area and Family Size in Pillar Houses

We found little correlation between family size and building

area in the raft and pillar houses (See Fig. 7). A statistical test of the correlation coefficient between both data showed 0.16 in raft houses and 0.31 in pillar houses.

Test of the correlation coefficient between building area and per capita income in the raft and pillar houses also showed that there was little correlation. In raft houses it was -0.01 and in pillar houses it was -0.09 .

Fig.5 Graph of Correlation between Building Area and Per Capita Income in Raft Houses

Fig.6 Graph of Correlation between Building Area and Per Capita Income in Pillar Houses

This study then made typology of room arrangement based on the building area and room functions in houses. There were 20 raft houses (62.5%) using DK-GLS/GL-S (Dinning+Kitchen, Guest+Living+Sleeping/Guest+Living, Sleeping) room arrangement pattern, 8 houses (25.0%) using DGL/DGLS-K-S (Dinning+Guest+Living/Dinning+Guest+Living+Sleeping, Kitchen, Sleeping) pattern and the remaining 4 houses (12.5%) using D-K-GLS-S (Dinning, Kitchen, Guest+Living+Sleeping, Sleeping) pattern. Differing from raft houses, the pillar houses had more different types of room arrangements. There were 22 pillar houses (42.3%) using DK-GLS/GL-S (Dinning+Kitchen, Guest+Living+Sleeping/Guest+Living, Sleeping) pattern, 7 houses (13.5 %) using D-K-GLS/GL-S (Dinning, Kitchen, Guest+Living+Sleeping/Guest+Living, Sleeping) pattern, 6 houses (11.5%) using DK-G-L-S (Dinning+Kitchen, Guest, Living, Sleeping) pattern, 4 houses (7.7%) using DGL/DGLS-K-S (Dinning+Guest+Living/Dinning+Guest+Living+Sleeping, Kitchen, Sleeping) pattern, 3 houses (5.8%) using DKS-GL/GLS (Dinning+Kitchen+Sleeping, Guest+Living/Guest+Living+Sleeping) pattern, 2 houses (3.8%) using DL-G-K-S (Dinning+Living, Guest, Kitchen, Sleeping) pattern and 4 houses (7.7%) using other patterns. There were also 4

houses (7.7%) consisting of single function rooms (See Fig. 8). There was also a tendency of pillar houses to use the single function rooms in accordance with increased building area.

Based on the typology of room arrangement above we recognized some rules in arranging rooms in both houses. First, the guestroom must be separated with the kitchen. Second, sleeping rooms have the priority to become single function rooms. We noted that almost all of the raft (93.8%) and pillar houses (90.4%) had sleeping rooms. Third, there was a tendency to combine the kitchen with an eating room, and a guestroom with a living room. We found that 65.6% of raft houses and 67.3% of pillar houses making combination of dining room and kitchen. All of raft houses and 71.2% of pillar houses made combination of guestroom and living room.

Percentage of houses having terraces in raft houses was higher than in pillar houses. In raft houses, it was 93.8%, and in pillar houses it was 75.0%. The proportion of terrace area/building area in raft houses (16.5%) was also higher than that in pillar houses (12.4%) (See Table 5). In both houses terraces not only functioned as chatting places but also as playgrounds for children, and hanging clothes and sleeping mattress out to dry. In raft houses, we also found a terrace as a place for raising chickens. However pillar house's inhabitants not only dried their clothes and sleeping mattress in their terraces but also in the other places such as wooden alleys/bridges, and open spaces surrounding their houses. This fact may explain why the percentage of houses having terraces and the proportion of terrace area/ building area in raft houses is higher than in pillar houses.

Table 5 Terrace Area in Raft and Pillar Houses

	Number of house having terrace	
	Raft House	Pillar House
Average	8.5m ²	8.0m ²
Total house having terrace	30 (93.8%)	39 (75.0%)
Proportion of terrace/house area	16.5%	12.4%

Source: Field Survey, 1997

4. People-gathering Places

This investigation found 10 places where people usually gathered. Based on the location we categorized three types of people-gathering places i.e. on the water, at the front of water and in the pillar house area. People-gathering places located on water had the main function as washing areas. These places usually were used by pillar house's inhabitants, because only a small number of pillar houses had washing places in their houses (See Table 3). People-gathering places located at the front of water area usually functioned as a place for waiting or resting before or after washing or boating. While people-gathering places located in the pillar house area usually functioned as a children playground and or places for playing games such as a mini billiard. We noted that people-gathering places in pillar house area usually located at junction of several alleys and a part of them were near neighborhood facilities such a stall or small mosque (See Fig. 9).

Fig. 7 Room Arrangement of Pillar and Raft Houses

Fig. 9 Typology of People-gathering Places

Fig. 8 Typology of Room Arrangement of Raft and Pillar Houses

The number of house's inhabitants who used people-gathering places usually was not the same. Washing places were usually used by inhabitants of 3-4 houses. Waiting places for boats were usually not only used by local people but also used by people from the other villages. We also noted that there were some gathering places usually used together by the raft and pillar house's inhabitants. We estimated an average of 8 houses used a gathering place. And we also estimated average size gathering places in pillar houses as 16 m² (See Table 8).

Based on those facts above, we can say that the people-gathering places constituted informal neighborhood facilities for the inhabitants to enjoy outdoor life. Formal activities such as neighborhood meetings were usually carried out in the house of the RT (neighborhood unit) leader or in an inhabitant's house which the RT's community had agreed to.

Table 6 Typology and Size of People-gathering Places

Type of Places		Number of User (House)		Total	Characteristics of Places/ equipment	Size
		Raft House	Pillar House			
On the water	A	0	4	3 - 4	As washing places	Unclear border
	B	0	3		As washing places	Unclear border
At the front of water	C	It is also used by people from the other village			Near guard house	Unclear border
	D	0	6	6	Near a mosque	15 m ²
	E	4	2	6	Near boat mooring	12 m ²
In the pillar house area	F	5	5	10	A billiard game	12 m ²
	G	0	11	11	Near two stalls	20 m ²
	H	0	10	10	Near a stall	12 m ²
	I	0	6	6	Near a stall	25 m ²
	J	2	4	6	Near a stall	An alleys
Average number of user (house) / a place				8	Note: for illustration see fig. 8	

Source: Field Survey, 1997

5. Conclusion

From the investigation results this study identifies that there is no relationship between building area and family size or income in both raft and pillar houses. However in typological analysis based on room function, the room arrangement DK-GL/GLS-S (Dinning+Kitchen, Guest+Living/Guest+Living+Sleeping, Sleeping) is the most popular pattern in both types of houses. We then found that there were three rules in arranging rooms in the houses. First, guestroom must be separated with kitchen. Second, sleeping rooms had priority to become single function rooms. Third, there was a tendency to combine a kitchen with an eating room and a guestroom with a living room.

In term of outdoor space we found that there were three types of people-gathering places. First, gathering places on the water, these were used for washing activities. Second, gathering places at the front of water, these were used as waiting or resting areas before/after washing or boating. Third, gathering places in the pillar houses area, these were used as children playgrounds and or places for playing games. Between indoor and outdoor space, most of the raft and pillar houses had terraces. The terraces in raft houses were more multi function than terraces in pillar houses.

Most of the pillar houses inhabitants used the shared washing places on water area, on the other hand the raft house's inhabitants used the gathering places in pillar house areas, particularly at the front of water area. This study therefore recognized that inhabitants of the raft and pillar houses constituted a community

that formed a spatial unity with some places for doing outdoor activities together.

Note

*1 There has not yet been census or investigation of riverside settlement having raft houses in Indonesian area. But we have found in *Periplus Adventure Guides* (1995) and *Indonesian from the Air* (PT Humpuss & Times Editions) that there are 2 rivers (Musi and Batanghari) in Sumatra Island and 4 rivers (Berau, Mahakam, Barito and Kapuas) in Kalimantan Island having raft houses.

*2 Case in Musi River Palembang Sumatra shows that in 1855 there were 539 raft houses (F.J.B. Storm van 's Gravesande (1856), *De Stad Palembang in Tijdschrift voor Indische Taal-, Land- en Volkenkunde* Deel V, Lange & Co, Batavia) and in 1997 there were 225 raft houses (Field survey by authors). In that field survey we also found some conversions of raft houses to be pillar houses.

*3 In Master Plan of Tourism Development South Sumatra, 1995, Musi Riverside area will be developed as a waterfront tourism. And according to the Major of Palembang Municipality, the local government will conserve and organize raft houses as tourism attraction of the Musi River (Sriwijaya Post, September 15, 1997).

*4 Growth of poor urban riverside residential areas do not mean also increasing raft house number. Case in Musi River shows that most of raft house's inhabitants work as water transportation workers. Decreasing number of water transportation (because of increasing roadway and road transportation) may cause decreasing number of raft houses.

*5 According to Dr. Rosihan Anwar, Director of Bekasi Public Hospital, 47.45% of decease in Bekasi Region (west Java) was because of a diarrhea endemic. One of some causes was unhealthy drinking water that is taken from polluted wells caused by household waste including excrement (Suara Pembaruan Daily, June 10, 2000).

*6 There are programs of government to improve condition of urban poor settlements in Palembang City. For example, government has replaced some wooden bridge with concrete and also provided communal water faucet. But the result showed that some people have not yet used the communal water faucet because they must pay it. And the programs have not yet reached near the water area of Musi River.

*7 Ref. 5) page 34 (English Summary).

*8 Kampung is a residential area for the lower classes in towns and cities (Echols and Shadily, 1989, *Dictionary of Indonesia-English*). Patrick Guinness (1986, *Harmony and Hierarchy in A Javanese Kampung*) defines kampung as off-street residential area or community.

*9 Ref.5) page 28

*10 Ref.3)

*11 and *12 RT is rukun tetangga (Indonesian). In the Indonesian urban administration, RT is the smallest neighborhood unit in kelurahan. The meaning of kelurahan is as the same as urban village. Approximately one RT consists of 40 households.

*13 Ref. 11) page 182

*14 Ref. 5)

*15 Ref. 6)

*16 Ref. 10)

*17 Ref. 1)

*18 Ref. 8)

*19 Ref. 3)

*20 Ref. 2)

*21 Ref. 3)

*22 If result of statistical test is high correlation, analysis of typology will be based on those variables i.e. building area, family size and per capita income. If the result is little correlation, the analysis will be based on the other variables.

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(和文要約)

- 序論:インドネシア・スマトラ島パレンバン市ムシ川の川辺居住地における住環境改善に向けて、本研究は、この川辺居住地の社会・経済的考察・分析を行うとともに、その住居および居住地の空間特性、居住者特性について考察・分析することを目的としている。本稿では、1996～98年に行った、ムシ川とオーガン川の合流点に位置する RT1 ケルラハン、ケルタパティ地域(筏住居 18 戸、高床住居 21 戸)と、ムシ川とケドゥカン川の合流点にある RT10 ケルラハン、5 ウル(筏住居 14 戸、高床住居 31 戸)地域における、現地調査、世帯主へのインタビュー、住居・居住地の実測・スケッチに基づき、特に、筏住居と高床住居両者の差異とパレンバン市の中での位置づけ、居室配置の類型化、人々が集まる場所に着目しながら、川辺居住独特の住居・居住地、および利用方法について考察する。
- ムシ川川辺居住地における住居の物理的状況:平均建築面積では筏住居が 44 m²と、高床住居(53 m²)や(58 m²)の平均よりも狭い。使用される建材は、筏住居と高床住居は、構造材の殆どが木材や竹で、屋根は7割以上がタン板である。また両者とも電気は供給されているが、水は川水を使用し、全ての筏住居、高床住居では屎尿が直接川に流されており、ゴミ回収も行われておらず、パレンバン市全体と比べると衛生設備の不備が目立つ。
- 居室配置の類型化:筏住居、高床住居ともに住居専用、職住併用の二つのタイプがあるが、殆どが住居専用として用いられている。建築面積と家族人数、あるいは床面積と世帯収入との間には殆ど相関関係は見られない。だが、62.5%の筏住居と、42.3%の高床住居の居室は、DK-GL/GLS-S (Dinning+Kitchen, Guest+Living/Guest+Living+Sleeping, Sleeping) のパターンで配置されているおり、また高床住居では、床面積が大きい程、居室の単一機能化の傾向が見られる。このような居室配置の特徴から、筏住居と高床住居の居室配置において、①客間と台所の分離:客間は必ず台所と分ける、②寝室機能の優先的分離:寝室が先に単一機能居室となる、③DK (Dinning+Kitchen)、GL (Guest+ Living)

という結合傾向:台所+食堂、客間+居間といったコンビネーションの傾向がある、ことが分かった。屋外についてみると、筏住居の 93.8%、高床住居の 75.0%に、テラスが設けられており、テラス面積対建築面積の比率は、筏住居 16.5%、高床住居 12.4%と比較的広く、またテラスでは、日常的な会話、子供の遊び場、物干し、にわとりなどの飼育場として利用されている。

- 人々が集まる場所～People Gathering Places:川辺居住地では特に人々が集まる場所が重要な役割を果たしている。調査の結果、居住地の中には以下の3つのタイプの場所があることがわかった。①水上(川中):主に洗濯を行う、②川に向かう橋上:洗濯後の休憩、乗降時の待ち合い、③高床住居内の広場:子供の遊び場、ゲーム場として用いる。このような場所は、そのタイプによって使用する居住者が異なっており、①は3、4世帯毎に場所が決まっており、また②は調査対象エリア外の人も利用する。また形式的な行為は RT リーダーの家で行われることなどから、人々が集まる場所は、居住者が屋外生活を楽しむためのインフォーマルな近隣施設と位置づけられる。

- 結論:以上、調査結果に基づき、パレンバン市ムシ川の川辺居住地における住居・居住地の物理的特性を明らかにした。建築面積と家族人数、収入との相関が無いが、①居室配置が DK-GL/GLS-S (Dinning+Kitchen, Guest+Living/Guest+Living+Sleeping, Sleeping) という独特のパターンを有するものが多いこと、②「客間と台所の分離」、「寝室機能の優先的分離」、「DK (Dinning+Kitchen)、GL (Guest+Living) という結合傾向」という3つのルールが見出されること、③屋外の人々が集まる場所には「水上」、「川に向けた橋上」、「高床住居内の広場」があること、④屋内と屋外をつなぐテラスが筏住居、高床住居共にあり、特に筏住居では複合的機能を果たしていること、を見出した。そして筏住居・高床住居双方の居住者がこのような屋外空間の相互利用を通してコミュニティを形成していると考えられる。

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