ADAPTATION OF CHINESE SETTLEMENT FOR ENVIRONMENT AND LOCAL TRADITION IN MUSI RIVERSIDE, PALEMBANG – INDONESIA

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ABSTRACT

Chinese communities arrived in Palembang at the 7th century, aimed to trade and to establish settlements on the Musi riverside. In order to survive, they adapted to the local environment and tradition. There are three types of adaptations, i.e., behavioral adaptation, adaptation of form, and adaptation of function. Behavioral adaptation is characterized by applying a maritime life, which is to harness the potential of the river to meet the needs of everyday life. Chinese communities also implemented Pancalang Lima and Batanghari Sembilan as local beliefs which is used in determining the position and orientation of the house. Adaptation of form is represented in the similarity of physical form and spatial order of Chinese residents with that of the arrangement of indigenous settlement. Adaptation of function is represented in the use of space and spatial interior in the neighborhood. Understanding the process of adaptation of Chinese settlement on the Musi riverside was performed by elaborating the physical form of architecture and interpreting it to Pancalang Lima and Batanghari Sembilan as a guide for the locals to develop their settlement. Thus, architecture can be used as a form of adaptation to the environment and tradition of local communities on the Musi riverside.

Keywords: adaptation, Chinese residential, riverside environment, tradition.

1. INTRODUCTION

Based on Kedukan Bukit inscription, Palembang is the oldest river city in Indonesia. It is located on Musi Riverside and becomes the center of Srivijaya Kingdom in the seventh century. Musi River along with all the potentials and resources in it are exploited by Palembang people in fulfilling daily life necessities. One of which is as a transportation line connecting remote areas and coastal areas of Sumatra Island. Characters of Musi River are wide, deep, calm surface currents, and estuary-shaped river mouth that is very appropriate as a means of transportation for both small and large ships carrying various commodities.

Transportation activities on Musi River open the opportunities for trading activity development that becomes a source of foreign exchange for Srivijaya Kingdom. The rapid economic growth of Srivijaya Kingdom attracted merchants from the highlands of Sumatra Island to various countries, one of which is China to trade and settle in Palembang. At the beginning, Chinese community lives in raft houses floating on Musi River. However,
during the Sultanate of Palembang, Sultan Abdurrahman granted privileges to Chinese communities in order to stay on the mainland because of their trading skill to boost the economy of Palembang.

Occupancy patterns of Chinese community and then shifted to the mainland are characterized by the formation of settlements on riverside, water bodies, or not far from the river because the survival of society still relies heavily on Musi River. Kampung Kapitan 7 Ulu is an early settlement example of Chinese community built on the mainland area on Musi Riverside. People who previously lived in the raft houses adapts to the environment in order that living activities can continuously exist.

Based on its components, environment can be divided into natural environment (bio-geo-chemistry-physics) and socio-cultural environment. Natural environment includes biological environment (animals and plants), soil, water, and physical elements and other natural chemicals that support and affect life, including terrestrial ecosystems, oceans, and atmosphere [1]. According to its nature, the adjustment to natural environment belongs to physical adaptation. While the socio-cultural environment includes all the results of human-made changes, covering political, economic, social, and cultural aspects. Therefore, the adjustment to socio-cultural environment includes in the non-physical adaptation.

Adaptation of Chinese community settlement on Musi Riverside covers physical and non-physical aspects that is mutually synergized and influence each other. Physical adaptation includes adjustments to geographical conditions of river environment. Meanwhile, non-physical adaptation includes adjustments to political, economic, social and cultural aspects that also influence the formation of residential architecture on Musi Riverside. Therefore, the process of physical and non-physical adaptation can be seen through morphological study of residential neighborhood and typology of residential architecture. Morphology describes the configuration of space and the forming mass of physical environment of settlement. A collection of residential units as a mass synergizes with spaces among them. Meanwhile, typology describes typical characters of residential architecture on Musi Riverside, so that it can be classified according its types. One of the first building types in the early establishment of settlements on the mainland of Musi Riverside is Rumah Limas known as the traditional house for Palembang people. Rumah limas adopts a stage building with a pyramid-shaped roof, in accordance with its location in the marshland and tropical climate. Chinese community also adopted the form of Rumah Limas at their house with some adjustments relating to traditions and patterns of their daily activities.

Based on the explanation above, it can be said that the adaptation process of Chinese community against environmental condition is very important, because the aspects involved in the environment also influence the formation of architecture. Therefore, this study is conducted to explore the adaptation process, the affecting aspects, and parties involved, so that the residential architecture of Chinese community could be formed on Musi Riverside. Research results are findings on the adaptation process of Chinese community to settle on Musi Riverside that are described morphologically and typologically. These findings can serve as guidelines in developing residential areas in Kampung Kapitan 7 Ulu as a part of Kota Pusaka preservation program proclaimed by the government of Palembang City.
2. METHODOLOGY

This research is a qualitative research with a case study approach, namely a research method through in-depth longitudinal examination to a situation or event using systematic ways in doing observation, data collection, information analysis, and reporting the results. In a case study, an empirical review is conducted to explain and understand the object studied specifically as a case. The object of study in this research is the physical environment of settlements and residential architecture of Chinese community in the MusiRiverside. The object of study selected is Kapitan House in Kampung Kapitan 7 Ulu which is one of the early settlements of Chinese community.

This study begins with collecting primary data (field data) and secondary data (literature study). The primary data is obtained through observations on the object of study. Data recording is done through surveying, mapping, sketching, taking photographs, and interviewing with local people. The primary data obtained are among others, position and orientation of house buildings against Musi River, the physical form of residential architecture and spatial layout inside. Whereas secondary data in the form of literature study about Rumah Limas and traditions of Palembang people regarding Pancalang Lima and Batanghari Sembilan. The analysis was made through a comparison between the primary data and secondary data. The position and orientation of house buildings against Musi River viewed from Pancalang Lima perspective. Meanwhile, the physical form of occupancy and spatial layout therein viewed from Batanghari Sembilan perspective is considered as the development of Pancalang Lima and literature study about Rumah Limas. Through this comparison, it can be seen the physical-forming aspects of residential architecture of Chinese community as a result of physical and non-physical adaptation processes. Stages/steps of research can be seen in Chart 2.
3. THEORETICAL REVIEW

This research uses three main theories as a basis for analysis, namely theory of environment, especially the riverside environment; theory of adaptation; and theory of Rumah Limas in which it is also explained about Pancalang Lima and Batanghari Sembilan as parts of Rumah Limas design.

3.1 Theory of Environment

Based on its composition, environment can be divided into natural environment and socio-cultural environment. Natural environment in this study is a riverside neighborhood, i.e. natural physical elements that form the landscape of earth in addition to mainland. Space of river is naturally determined by the pattern of water flow. In this case, the river environment is viewed as a directional factor in spatial planning and land designation. However, the river environment is dynamically also affected by land designation. Thus, river space and mainland space have a very closely reciprocal relationship.

Socio-cultural environment includes all the results of human-made changes, covering political, economic, social, and cultural aspects. On Musi Riverside area, these aspects also influence the formation of settlement and dwelling architecture.

- Political aspects involve the role of authorities and policies imposed to regulate riverside settlements. Political aspects play a role to create regularity, order and security in the process of living.
- Economic aspects relate to the utilization of potentials and resources of Musi River through industry, commerce, and transportation sectors. Geographical conditions of an environment also determine the types of community livelihoods. Indirectly, the types of dwelling will also be adjusted to the types of community livelihoods.
- Social aspects relate to the utilization of potentials and resources of Musi River, for example through arts sector.
- Cultural aspects relate to the society's perspective in understanding the existence of Musi River as one of natural elements that is as a source of life. This understanding is then formulated in a variety of views and traditions in constructing residential buildings. One of which is Pancalang Lima and Batanghari Sembilan as guidelines in setting up a Rumah Limas.
3.2 Theory of Adaptation

The terminology of adaptation is derived from the Latin ad (to) and adaptare (to fit). In the context of architectural adaptation, adaptation means any intervention effort to adjust, reuse, or improve the built environment according to the condition/new environment [2].

Human presence cannot be separated from the condition of surrounding environment where humans live. James Fernandez in his work “Fang and Zulu People” asserts that the relationship between humans and environment is reciprocal and assertive. Environment affects those who exploit the potentials of surrounding environment. This process is very important in the creation of cultural metaphor, starting from the identification of a place and establishing the identity, the community then will build environment, settlement, and architectural elements [3].

The condition of environment becomes important factors that determine human behavior in order to survive. When the environmental condition is more dominant than humans, humans will adapt to achieve the harmony. However, when humans are more dominant than environment, humans will change the environment so that harmony can be achieved. Rapoport and Wohlwill explain three adaptation strategies to maintain the harmony with environment, namely: “(Human Behavior & Environment)”

- Adaptation and adjustment, humans change their behavior to avoid conflict and to establish harmony with the environment. This adaptation is the most common.
- Adaptation and reaction, changes in human behavior to counter the environment changes will bring other changes in the environment.
- Adaptation by pulling out, generally relates to the phenomenon of stress, acculturation as social deviation, feeling ostracized, loss of identity or identity conflict, and hostility between groups or individuals. Humans who pull out from the changing environment will usually move to another place that does not require a lot of adjustment.

3.3 Pancalang Lima and Batanghari Sembilan as Local View

Palembang community regards river and sun as two natural elements that surround human life in the world. Musi River provides water as a source of life, and the sun becomes a source of light for community activities. The movement of sun from east to west symbolizes the journey of human life from birth, grown up, and eventually died.

The river flow and movement of sun are so meaningful for Palembang society, so that it becomes guidelines in determining the position of Rumah Limas which is formulated in Pancalang Lima. The term Pancalang Lima is derived from the governance structure of Palembang Sultanate, in which a sultan is assisted by four high-ranking officials, each of them in charge of managing a sector. In a study conducted by Dadang Hikmah Purnama entitled Rumah Limas dan Struktur Penikiran Orang Palembang, it is described that the position of Rumah Limas is in the center point between imaginary line of river flow from upstream to downstream and axis of sun movement from east to west. Thus, the position of a Rumah Limas has five points of reference, namely upstream, downstream, east (sunrise), west (sunset), and Rumah Limas as the center symbolizing the activity center of human life.

![Figure 1. Orientation of Limas House](Source: Dadang Hikmah Purnama. 2000)
In his study, Dadang Hikmah Purnama also formulates Batanghari Sembilan views applied to spatial order of Rumah Limas. This concept is the classification of nine as the development of Pancalang Lima, consisting of a central point and eight points surrounding it. Harmony and balance of these nine points are analogized as Musi River that becomes the estuary of eight tributaries (Figure 2).

3.4 Limas House as Traditional Architecture of Palembang

Rumah Limas adopts architecture of rectangular house design idea with pyramid roof shape. All communities in Palembang assume that rectangular house design literally reflects balance and harmony in life. In addition to its roof shape, it’s called as Rumah Limas since it also reflects 5 goals to be pursued by the houseowner, they are glory and greatness, Harmonious and peaceful, civilized manners, lush, tranquil and secure, and prosperous [4]. Palembang communities utilize this Rumah Limas to foster peaceful family life, both in daily life and in social and religious life. In addition to use this Rumah Limas as a residence, it is also used as a place for traditional ceremony or event. From its architectural design, Rumah Limas is constructed from five stages (bengkilas) with special philosophy on each stage. Each stage represents different symbol of the community’s five life stages, namely their age, type, talent, rank and dignity [5]. Each stage at Rumah Limas also reflects someone’s social class among such Community in Palembang. Here are those five stages at Rumah Limas:

- **1st Stage: Pagar Tenggaloon**, becomes the lowest stage forming as a room without border wall. It serves for public place or as the living room for the guest which is not in close kinship relationship. Within Palembang community structure, this stage is the place where all people awarded as Kiagus/ Nyayu gather.
- **2nd Stage: Bengkilas Bawah**, it normally has Jogan on its right and left sides, this space is used for house guard. Jogan is also used as a special gathering room for men, or as the room to stay for the guest who does not have closer relationship with the houseowner, accordingly, it is separated from the inner part of the house. This stage is intended for the gathering room of the Kiemas/ Nyiemas.
- **3rd Stage: Bengkilas Poocook**. It has higher floor position and border wall named Lawang Kiyam (folded-fan look door). This is the gathering place for special invitation and honourable guest of the houseowner. Only specific person with Masagus/ Masayu honours who are permitted to enter into this room.
- **4th Stage: Gegajah**. It has a higher position again. Gegajah is precisely located below the top of the pyramid room. Gegajah is devided into three parts, Amben Tengah/ Amben Tetuo, which is flanked by Pangkeng Penganten and Amben Peenggeer / Amben Keluargo. It becomes the most hornourable space among the others since it has the highest privacy place in all of Rumah Limas’ hierarchy. Amben tetuo is used as the living room of the senior family member, and also as discussion room, as well as the bridal altar in the event of marriage. Pangkeng Penganten is newly wed room, and Amben Keluargo is a space for married family. Next to Pangkeng Penganten and Amben Keluargo, there is Keputran (girl’s room) and Keputran (boy’s room). Only such person honoured as Raden/ Raden ayu who are permitted to enter this house level.
- **At the back side**, there is Pawon which has the lower position than Gegajah. There are two ways to locate Pawon at Rumah Limas, there is a part intended to be the lower part of the house, and there is a part of which the building is constructed separately from the main building and connected by Garang. Three main parts of Pawon, which are used as food storage, kitchen, and washing place.

The layout of Rumah Limas is also designed according to its binary opposition among Palembang communities’ belief, it is like east to west, north to south, upstream to down stream, good and bad, front and back/ rear, public and private, important and unimportant, man and woman, public and domestic, life and death, married and unmarried, up and down, right and left, as well as senior and junior [6].
4. DISCUSSION

Research analysis on Kapitan House was based on the physical and non-physical adaptation process towards Musi Riverside environment. Physical adaptation involves Rumah Kapitan adaptability towards the natural condition of Musi River. While non-physical adaptation involves such adaptability towards socio-cultural environment consisting of political aspect, economic aspect, social and cultural aspects.
4.1 Physical Adaptation

Rumah Kapitan is one of the first settlement design created at Kampung Kapitan 7 Ulu, it was former house of a captain who led Chinese community in Palembang. This Captain was acknowledgedly known as “Kapitan” (Captain) who lately became the origin of the name of Kampung Kapitan. His house formerly had 3 main buildings. Yet, due to resource constraints, one of those buildings had tumbled down. From two buildings left, only the 1st building functions as the residence, while the 2nd building functions as religious building and it is the reason why it is called as Rumah Abu (Figur 8). This research was focused in such discussion of the 1st building.

Being seen from its position and orientation, the settlements at Kampung Kapitan are located on Musi Riverside, with the linear orientation against Musi River. Rumah Kapitan is facing towards Musi River, it suits the insight/ consideration of Pacalang Lima reflecting that the house orientation should face on to the river. The position of Rumah Kapitan is displayed by the red line on Figure 6 and 7. 1945 map shows that the position of Rumah Kapitan was built up next to the river. But along with the sedimentation which continues to happen and the expansion of residential settlement, today position is located in the middle of the area, and Musi Riverside has been occupied by the other settlements or buildings.

This house design is similar with Rumah Limas, as having stage building design with pyramid roof. Stage house design is highly suitable with the land type/ characteristic around Musi Riverside which is generally formed by marshland. Pyramid roof design is also intended to adapt with tropical climate. Most of Rumah Kapitan structure and construction use wood material. Several kinds of wood being used for building construction such as, tembesu wood (for wall, floor and door), water resistant unglan wood (for house/ building support) and seru wood, which is according to Palembang community’s belief, referring to wood variety which is prohibited to be trampled step over, therefore it is only used as house frame.

![Figure 6. Captain Village in 1945](image)

![Figure 7. Captain Village in 2016](image)

![Figure 8. Elevation of Captain House](image)
Applying Local Knowledge
for Livable Space

Being seen from the building map (Figure 10), Rumah Kapitan is formed by 2 main building units being separated by innercourt in the middle part of the house. These rooms structure is one of the residences specific characteristic in China which then being implemented on Rumah Kapitan design. Front building has 4-stage room. (T1) the first stage or the utmost front part of this house is terrace which may be reached through the staircase attached on its right and left sides. This terrace is used to receive the guests who have common family relationship, and becomes the welcoming area during big event. When being linked to the layout of Rumah Limas, this kind of terrace can be deemed as Pagar Tenggaloong. (T2) The second stage of the room is a living room used to receive close family guest. On the layout of Rumah Limas, this room has the same function as Bengkilas Poocook. (T3) The third level of the layout of this house is the main room being flanked by bedrooms on its left and right side. Currently, this main room is used as a prayer room by placing the altar table. These rooms have the same function as Amben Tetuo, Amben Keluargo and Pangkeng Penganten do at the Rumah Limas. (T4) The fourth stage is used as service room that supports the main room.

Front and rear building mass are connected with a terrace that surrounds innercourt. On its right and left sides, there is a warehouse that can be accessed from the inner court terrace or from the front terrace. On the innercourt terrace, there is also an access to the bathroom which becomes an extra room at the Rumah Kapitan. At the rear building, room layout arrangement is similar to the arrangement of the room layout of the front building. After passing innercourt, (T1) the first phase of the rear building is a living room in the form of terraces. (T2) The second phase is the family room which becomes an essential part of the rear building. The family room is also flanked by two bedrooms on each side. (T3) The third phase is dining room. (T4) The fourth phase is kitchen with storage on its left and right sides.
From Figure 10, it can be also seen that principally, Rumah Kapitan has linear circulation pattern. Branching circulation pattern can be found at living room/main room which become unit core of the front building and the rear building. This composition is similar with Rumah Limas, in which the living room/main room has equal function with Amben Tetuo at Rumah Limas. Dining room is flanked with bedrooms on its right and left sides, as well as front hall (terrace and guest room) and kitchen. The bedrooms which are available on the right and the left sides of dining room, form right and left axis, while the terrace and the kitchen form front and rear axis of Rumah Kapitan. Consequently, this house structure may be said to follow Pacalang Lima procedure, this house, in its construction, didn’t adopt Batanghari Sembilan in complete. On the Section Figure, Rumah Kapitan has no elevated floor stage. Since the people lived on Rumah Kapitan were Chinese offspring who do not follow class classification within their social structure as Palembang people have, same floor elevation was applied on each room Rumah Kapitan.

![Figure 10. Rumah Kapitan Floor Plan](image)

![Figure 11. Sectional Image of Rumah Kapitan](image)
4.2 Non-Physical Adaptation

Non-Physical aspect influencing the construction of Rumah Kapitan, namely:

(1). Political Aspect; Rumah Kapitan which was built up next to Musi River cannot be separated from the community leader by that time, Sultan Abdurrahman who issued a policy to relocate the migrant settlement from joint house on to land area. The location was adjacent with Benteng Kuto Besak; this policy was made in order to assist Sultan in monitoring Chinese community movement smoothly. During Dutch dominance era, zoning policy was applied for ethnical-based settlement. This had purpose to limit community movement and split the community’s power.

(2). Economical Aspect; Formerly, Kampung Kapitan had had trading activity as their income source. Captain played role as the partner and mediator for the leader in managing trade circulation in Palembang. Rumah
Kapitan position which directly faced Musi River had considerable advantage in monitoring merchant ship traffic.

(3). Social Aspect; during the Dutch colonial government there was a change in the meaning of social space between the Dutch colonial government and the community on Kampung Kapitan. In the location side, there was no such change being made upon the position. However, the meaning of this position had undergone considerable great transition. From supervisory position, it had different meaning into "friend" room with a common room on Musi River [7].

(4). Cultural Aspect; even though the construction of Rumah Kapitan adopted local wisdom value, but the cultural element of Chinese people was still used. In addition to the innercourt design applied in the middle space, it can still be found some Chinese architectural ornament used at Rumah Kapitan (figure 16).

Figure 16. Chinese Architectural Ornament at Captain House

5. CONCLUSION AND RECOMMENDATION

From the research being performed, it can be seen that Chinese community had adopted geographical and social-cultural conditions of Palembang communities. Physical adaptation can be seen from the architectural design of Kampung Kapitan 7 Ulu which adopts Stage House design with pyramids roof as its adaptation with the marshland condition on Musi Riverside and tropical climate. While non-physical adaptation can be seen from the house layout and house architectural design which adopt Rumah Limas by referring to Pancalang Lima and Batanghari Sembilan Principles. Accordingly, it can be said that the typology of Rumah Kapitan adopts Rumah Limas typology as well as socio-cultural aspects being contained. However, Chinese culture is still implemented; one of them is the involvement of innercourt and Chinese architectural ornament.

This research result may be used as the guideline in developing settlement area next to Musi River, especially to the settlement on Kampung Kapitan 7 Ulu in order to make it more well-managed, under control, and to continue the existing spatial planning, and it can support the Palembang Governmental programmes.

ENDNOTES

6) Dadang Hikmah Purnama, op. cit. hlm 130
7) Johannes Adiyanto, Kampung Kapitan Interpretasi “Jejak” Perkembangan Permukiman dan Elemen Arsitektural”, Universitas Kristen Petra.
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