

# The configuration of residential area in urban structure of the palace in Siak Sri Indrapura - Riau

**Muhammad Rijal**

Lecturer, *Jurusan Arsitektur Fakultas Teknik Universitas Riau*,  
Kampus Bina Widya, Jl. HR Subantas KM 12.5, Simpang Baru, Tampan, Pekanbaru,  
Riau, Indonesia

E-mail: mrijal.unri@yahoo.com

**Abstract.** This article is part of major research in describing the configuration of waterfront residential area in urban space structure of the palace and related to the Malay Kingdom in the waterside of the Strait of Malacca. This research aimed to identify the configuration of riverfront residential area in Siak Sri Indrapura City based on physical and non-physical aspects. The method used in this research was qualitative rationalistic referring to the components of urban design theory. The results of the research showed that the spatial configuration in Siak Sri Indrapura City is linear and related to the past events and socio-cultural and socio-economic interaction of the society.

## 1. Introduction

Siak Sri Indrapura City is a riverfront city formed since the existence of Siak Kingdom in the 18th century [1]. The city located in the eastern area of Sumatra Island is a port city formed by the process of life activities on the bank of Siak River (Figure 1). Riverside and riverfront cities usually have close relationship with the history of the formation and the existence of the cities or the discovery of a place to live and reside [2]. By looking at the history of the development of cities in the world, then this is understandable. Even some cities are still in close contact with water as in Venice and Naples [3]. Siak Sri Indrapura City has been formed by the material and spiritual culture of various ethnic, social, economic, and governmental systems in the past [4]. The passage of time that has transformed the economic system, government, technological developments, and mosaics formed shows indications and tendencies of development and growth without direction. These indications began to be seen since the city was used as the capital of Siak Regency, the implications for the expansion of territory by the Government of Riau Province. Siak Regency is an expansion of Bengkalis Regency, by the Decree of the Governor of Riau Province No. 253/U/1999 dated May 26, 1999 which decides Siak Sri Indrapura City as the district capital. To anticipate these indications, it is necessary to understand the characters of Siak Sri Indrapura City as a riverfront city, because the understanding of the characters of a region can be used as one of the considerations in creating the environment that residents do not feel strange to the environment [5].

Siak Sri Indrapura city as a riverfront city shows indications and tendencies of development and growth without direction because of the concept of structuring and development that is not clear yet. It will further result in the loss of the characteristic of riverfront city spatial patterns as one of the formers of city identity. This research aimed to describe the configuration of waterfront residential



area by examining the characteristics of riverfront city spatial patterns in Siak Sri Indrapura City based on the physical aspects formed through the physical elements of the city as the accumulation of arrangement of urban design elements and based on non-physical aspect formed from non-physical elements, i.e., the social order formed from socio-cultural and socio-economic conditions.



**Figure 1.** Siak Sri Indrapura City located in the eastern area of Sumatra Island is a port city formed by the process of life activities on the bank of Siak River

## 2. Literature Review

The character of a city is needed to provide an understanding of the identity of a city [6] according to its potential. In this case, the character is a physical and non-physical manifestation, providing an image and identity of the city [7]. The understanding of the value of a place is the understanding of the uniqueness of a place in particular when compared to other places [8] [9]. Characteristic of riverfront city spatial patterns is the appearance of urban environment that has a dynamic mass development pattern in accordance with the character of the riverbank, has a linkage of activities and orientation with river water environment [10], as a result of historical products of decision making by many parties within a certain time and the development of the social life of the community [11].

The elements of a characteristic of riverfront city spatial patterns are classified into two, namely, the physical elements of the city as the visually formed physical conditions and the non-physical elements as the unmeasured elements in which the city is a social order of society that influences the formation of urban spatial patterns. The elements forming the character of the physical space of the city used as the basis of analysis in the study area are: land use, mass and form of building, circulation and parking, open space, pedestrian path, supporting activities, symbols, and preservation [12] as the accumulation of urban design elements [13]. The element forming the character of the non-physical space of the city used as the basis of analysis in the study area is social order [14] that is formed

through the socio-economic and socio-cultural [15] conditions of Siak Sri Indrapura City community that form the character of the riverfront city spatial patterns.

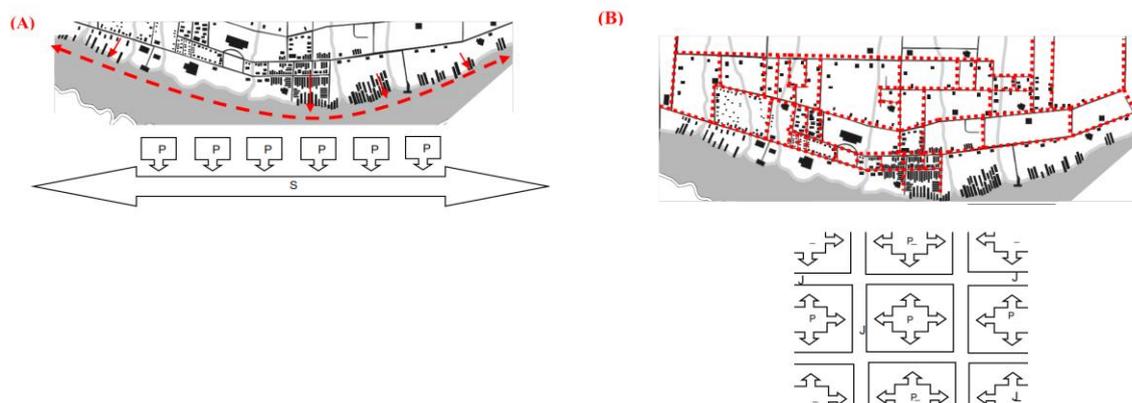
### 3. Research Method

Based on the research objective of studying the characteristics of riverfront city spatial patterns in Siak Sri Indrapura City by linking physical and non-physical development of riverfront city spatial pattern, so to achieve the objective of this research, the research methodology used was through rationalistic approach with the qualitative paradigm. The design of rationalistic research comes from the theoretical framework constructed by interpreting the results of the previous research, known theories, the ideas of the experts and constructed into something that contains some problems that need to be examined further. This rationalistic qualitative research methodology comes from a holistic approach in the form of grand concepts, which is interpreted into a substantive theory. The object was studied without separating the context in particular focus/accentuation, and the results of the research were re-positioned on grand concepts [16]. To conduct this research, the components to be examined were determined first, then interpreted into three main groups of urban design theory, namely, the theory of figure-ground, linkage, and place. The components under study based on the physical aspects by the accumulation of urban design elements were: land use, mass and form of building, circulation, and parking, open space, pedestrian path, supporting activities, symbols, and preservation. As for the non-physical aspects based on the social order of Siak community were: socio-cultural and socio-economic conditions. □

### 4. Results And Discussion

#### 4.1 Characters of Physical Spatial Patterns

The character of the riverfront city physical spatial patterns formed in Siak Sri Indrapura City is essentially linear because of the dominant natural element, i.e., Siak River. Siak River which is directly adjacent to Siak Sri Indrapura City plays an important role in forming the residential orientation since the river is a medium of life for Siak community and a vital means in the process of forming the city. In the land area, there is a grid pattern constructed by massive mass construction and open space (Figure 2).



**Figure 2.** Riverfront residential area is the beginning of the growth of settlements formed in Siak Sri Indrapura City. The pattern of the settlement land formed on the riverbank is linear. (A). While land settlement area is a residential area formed by the expansion of settlement on the riverbank (the spread of settlement development in Siak Sri Indrapura City which tends to land due to erosion in the river side area). The pattern of the settlement land formed in the land area is a grid. (B). □

The patterns of physical space formed in Siak Sri Indrapura City based on the physical elements of character formation of riverfront city spatial patterns:

#### 4.1.1 Land Use

The formation of space based on the placement of land and river shows that the transition area between land area and water area is a transition area between land and water life, so that visually the relationship shows the focusing thus creating a central pattern where the transition area as a riverbank area becomes the center/core/nucleus of space for Siak Sri Indrapura City. So, the pattern of space created is centered towards the riverbank. From these spaces, the layout pattern of this riverfront city is divided into several patterns as follow:

- Grouping pattern. This pattern is found in the transition area between the land area and the water area in the form of market areas and settlements grouped at the inlet of Siak River.
- Spreading pattern. This pattern is found in the land area in the form of residential areas spread with the form of individual buildings.
- Elongated pattern. This pattern is found in the transition area between the land area and the water area in the form of market areas and settlements directly adjacent to the water area, elongated along the bank of the Siak River.

Urban space formed by the inlets, Siak River, and the connecting paths in the form of roads and bridges in a grid pattern. This can be seen from the imaginary paths formed from the secondary river in the form of the inlets elongated from the north-south, perpendicular to the primary river in the form of Siak River and the connecting paths in the form of roads and the bridges connecting the areas formed from the distance between the inlets elongated in linear from the east-west. The patterns of settlement land formed on the land area and transition area are: □

- The pattern of settlement land formed on the riverbank in a linear pattern. This linear pattern is formed from a settlement orientation (solid) along the riverbank that tends to lead to the Siak River (void).
- The pattern of settlement land formed in the land area in a grid pattern. This grid pattern is formed from the settlement orientation (solid) in the land area that tends to lead to the road (void) in a grid pattern. □

From the identification of the spaces formed based on grouping of similar activities or several types in this riverfront city, from the figure-ground analysis, the spatial pattern formed is a grid. The configuration between solid and void elements contained in each activity space forms the patterns as follow: □

- The spatial pattern in the market areas formed by the trading activities forms a grid pattern formed by the urban solid in the form of building blocks in line with the orientation facing to the road of market area in the form of urban void supported by the border of the market area in the form of inlet and Siak River as urban void.
- The spatial pattern in Siak Palace area formed by the activities of government services forms a grid pattern formed by urban solid in the form of single building block with the orientation facing to the road of palace area in the form of urban void supported by border area of Siak Palace in the form of inlet as urban void open linear system and the center of the area in the form of open field located in front of Siak Palace in square shape. □
- The spatial pattern in the mosque area formed by the activities of worship forms a linear pattern formed by the urban solid in the form of a single building block with the orientation facing the road of mosque area in the form of urban void supported by the border of mosque area in the form of inlet and Siak River as urban void open linear system.
- The spatial pattern in the river area formed by the waters activities forms a linear pattern formed by solid urban in the form of a single building block with the orientation facing to the Siak River in the form of urban void spread in linear.

#### 4.1.2 Mass and Form of Building

From the explanation that a solid urban formed from a single block, the block defines the sides and block of the field, the spatial patterns formed from the mass configuration of buildings in Siak Sri Indrapura City are:

- The linear pattern formed by the settlement arrangement developed along the bank of the Siak River and the settlements located along Jalan Sultan Ismail. The orientation of the building faces the river and Jalan Sultan Ismail.
- The grid pattern formed by the arrangement of the row of buildings and intersection of circulation pathways on land area. The dominant single building form on the land area and market area that the building mass faces the road, except the place of worship of Muslims, i.e., the mosque that faces the west.

While the shapes of buildings in Siak Sri Indrapura City explain that the spatial patterns are in the form of: □

- The buildings formed on a riverbank area are stilt houses, where the buildings are supported by poles planted in the riverside with the orientation toward the area of Siak River in the form of a single building and a row of buildings that form a linear pattern along the side of the Siak River. □
- The buildings formed in the land area are the buildings directly connected with the ground, stilt houses with the foundation in the form of piles and the orientation of the buildings toward the road in the form of a single building and a row of buildings that form a grid pattern in accordance with the pattern of the roads formed in Siak Sri Indrapura City.

#### 4.1.3 Circulation and Parking

From the pattern of achievement through the transportation system in Siak Sri Indrapura City, the circulation patterns formed are:

- The circulation pattern in river water area in Siak Sri Indrapura City formed by Siak River that serves as a means of river transportation used for mobile activities and the transfer of people and goods. The existence of river transportation facilities influences regional economic activities in the development and establishment of spatial structure in Siak Sri Indrapura City. The circulation patterns that occur in the Siak River are in the form of circulation of water transportation means (boat, ship) that move along the bank of the Siak River and crossings to Mempura Village, across from Siak Sri Indrapura City.
- The circulation pattern formed in the land area in Siak Sri Indrapura City seen on the road transportation path formed in the city area in a grid pattern. The circulation pattern formed in Siak City is using the road pattern formed by land transportation means such as pedicab, bicycle, motorcycle, private car, and pedestrian along the pedestrian path formed.
- The parking system formed in Siak Sri Indrapura City is in the form of parking system that existed in the land area formed on the roadside and the water parking system formed in the riverbank area in the form of docks.

#### 4.1.4 Open Space

Open space as a character forming an element of riverfront city spatial pattern in Siak Sri Indrapura City in the area scale of Siak River itself as the largest open space of Siak Sri Indrapura City. The pattern formed of open space is based on the mobile activities that form linear pattern by the condition that makes up the river. The open spaces created in the land area are in the form of open space patterns created through: □

- Corridor is a path category that serves as a circulation path that connects a function with other functions or more. This form of space is defined by the existing roads in Siak Sri Indrapura City and the elements of the existing building walls on both sides. □

- Cluster: this distinctive shape is seen in open space located in front of Siak Palace in a square-shaped. The specific function of this open space gives the impression of strong nodes in the area. This space is formed because of the arrangement of the building mass around the open space.
- Inter-building space: the open space formed by a clearance between one building and other buildings on the settlement in Siak Sri Indrapura City.

#### 4.1.5 Pedestrian Path

This pedestrian path pattern is inseparable from the role of the circulation path as a connector besides as a transportation infrastructure such as:

- Activities Connector. This type of connector is formed because of the activities of the Siak community that occur at a certain time in the form of activities that occur in high intensity of mobile activities.
- Compositional Connector. This type is formed by the pattern of the house that provides the form of a compositional connection. Linear circulation evenly causes the network. The development of the surrounding area influences this form of connection to accommodate the increasingly varied community activities. This connector aspect is an important element that connects the main circulation path to the filler area.
- Areas Connector. This type is formed as the main path between the areas, i.e., on the road that is typically linear parallel to Siak River segments. This areas connector supports a wider connection of areas about the areas outside Siak Sri Indrapura City□

#### 4.1.6 Supporting Activities

The spatial pattern formed based on supporting activities in Siak Sri Indrapura City from the result of the figure-ground analysis in the form of:

- The trading activities are taking place in the buildings in the market area that have the orientation toward the road following the pattern formed by the road so that the spatial pattern formed following the pattern of the road is in the form of a grid pattern. □
- The port area in the form of a dock area by utilizing the functional spaces of riverfront city such as the docks formed along the bank of the Siak River. The port area is formed on the bank of Siak River as the implementation of water transportation activities for the community of Siak Sri Indrapura City in conducting trading activities to the outside or enter the riverfront city. The activities take place linearly along the journey from the port to the market area.

#### 4.1.7 Symbols

The study of data showed that the symbols contained in Siak Sri Indrapura City are in the form of symbols contained in:

- River area: symbols and signs can be seen in the form of a barrier formed in the Siak River as the indicator of river depth that can be bypassed by water transportation path. The barrier is also the mangrove that grows along the Siak River as the boundary between land and river.
- Riverside area: symbols and signs can be found in the form of a port jutted into the river and the parking area for the water transportation means anchored.
- Land area: the symbols and signs formed are in the form of traffic signs and billboards/signboards.

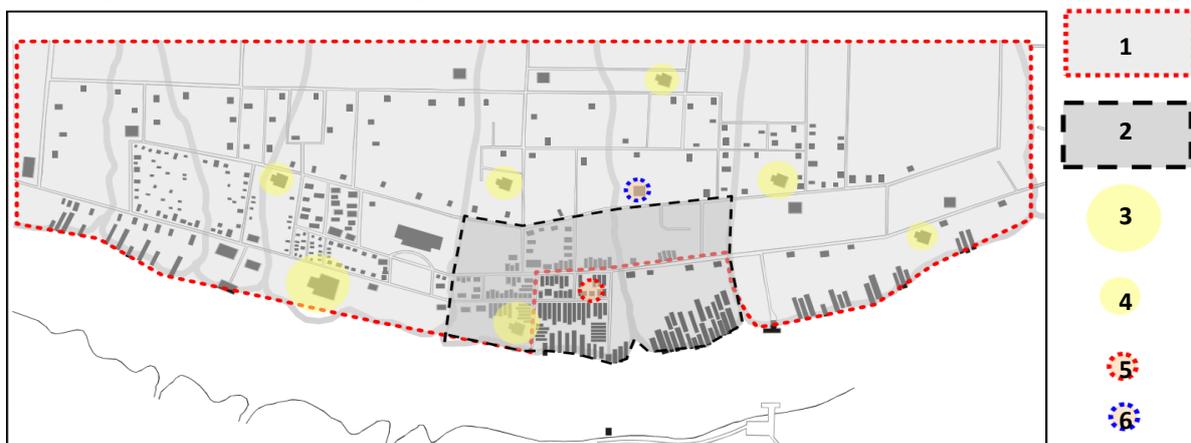
#### 4.1.8 Preservation

Analyzed from a solid-void urban pattern, Siak Palace is a landmark of a riverfront city that has a historical value with a unique shape and the size which has a larger scale compared to the surrounding buildings. Monumental impression with the presence of an urban void in front of the palace is in the

form of an open field that provides visibility of a monumental visual of this Siak Palace. While the Siak River, viewed from its existence as a physical element, the existence of this urban void is felt firmly with the construction of a dam along the riverbank. □

#### 4.2 The Character of Non-Physical Spatial Patterns

While non-physical spatial patterns formed in Siak Sri Indrapura City are formed from two dominant ethnic groups in building social order in the form of social and cultural construction built by the Chinese community as an immigrant community who has been living in Siak Sri Indrapura City for a long time and the Malay community known as local population (Figure 3). Both communities have different patterns in constructing the social space, where the dominant Chinese community in the market area tends to form a firm grid spatial pattern, while the Malay community tends to form irregular spreading pattern in Siak Sri Indrapura City and does not have a firm space limit. This is due to the two concepts of differences between the two ethnic groups in interpreting urban space. Chinese community tends to have the concept as an urban community while Malay community tends to have the concept of traditional community.



**Figure 3.** The distribution of ethnic groups formed in Siak Sri Indrapura City affects the placement of religious spaces arranged by the presence of ethnic majority living. 1) the distribution of majority group of Malay as a local community. 2) the distribution of Chinese ethnic group in the market area. 3) the center of Muslim Malay ethnic group's religious space, namely, Syahbuddin Grand Mosque. 4) Muslim Malay ethnic group's religious space in the form of small mosques scattered in the land area. 5) the center of Chinese ethnic group's religious space in the form of a temple in the market area as the settlement of Chinese ethnic group majority. 6) religious space for Christian group in the form of churches.

#### 4.3 The Configuration of Waterfront Residential Area

The configuration of settlement space in Siak Sri Indrapura City is linear. This is caused by the geomorphological condition of the area formed it and the more dominant water activities in the context of socio-cultural and socio-economic life of its people. This is in line with the opinion of Hornby that the pattern of settlement space on the waterside area of Malacca Strait tends to be linearly associated with the water activities forming it [17]. Also, past events also influence the configuration of settlement space in Siak Sri Indrapura City associated with the existence of the palace as a relic of Siak Sri Indrapura Kingdom. This palace is related to the history of the Islamic Malay Kingdom in the waterside of Malacca Strait. Efers state that the palace city as the relic of Malay Kingdom tends to separate the economic space and the administrative space of the kingdom [18]. However, in Siak Sri Indrapura City, there is a difference where the economic space merges with administrative and religious spaces and is only separated by an inlet. □

In understanding the growth of waterfront city in the waterside of Malacca Strait, it is inseparable from the existence of the palace as the relic of the Malay Kingdom in Malacca. Likewise, in Siak Sri Indrapura City, the palace area that blends with open space located on the bank of Siak River shows that the palace is a city center, as a symbol of power in the city space. The existence of the palace gives an impact in the order of urban space that initially tends to be linear, creating the order of space as if in the form of centering. The grid and linear patterns blended with the centering pattern is a powerful concept in understanding the growth of Siak Sri Indrapura City. Thus, the aspect of historical value can be a guide in understanding the development of cities in the waterside of Malacca Strait associated with the Malay Kingdom as the palace city.

The socio-cultural and socio-economic interaction formed in Siak Sri Indrapura City are related to Malay and Chinese ethnic groups in filling the life activities of Riverside. This can be found in the cities formed in the waterside of Malacca Strait associated with the past government system that formed it. The migration in the early formation of Malay city and the existence of the European nation also influenced the configuration of waterfront space settlements associated with the social order of society that formed it. □

## 5. Conclusion

Based on the research results, the character of the urban spatial pattern formed in Siak Sri Indrapura City is linear because of the dominant natural element in the form of Siak River on the riverbank. Siak River which is directly adjacent to Siak Sri Indrapura City plays a very important role in shaping the settlement orientation because the river is a medium of life and a vital means for the Siak community in the process of forming the city. In the land area, a grid pattern is found, built by mass construction and open space. While the character of the non-physical spatial pattern is formed from two groups of different social order in building social and cultural construction in Siak Sri Indrapura City, namely, a group of Chinese community as the immigrants who have been living in this riverfront city for a long time and the Malay community as the local community. Chinese community who dominate in the market area tends to form spatial grid pattern and has a firm limit on the region. While Malay community tends to form a spreading and irregular linear pattern with unclear and not firm space in forming the spatial pattern in Siak Sri Indrapura City. This is due to two different concepts in interpreting urban space. Chinese people tend to have character as an urban community while Malay people tend to have character as a traditional community. □

## Acknowledgments

LPDP BUDI-DN, Republic of Indonesia

## References

- [1] Norma D 1999 *Selintas Sejarah Kerajaan Siak Sri Indrapura dan Peninggalannya* (Pekanbaru: Departemen Pendidikan Dan Kebudayaan) (In Indonesia)
- [2] Rijal M 2002 *Karakteristik Pola Ruang Kota Siak Sri Indrapura Sebagai Kota Pinggiran Sungai* (Universitas Diponegoro: Thesis) (In Indonesia)
- [3] Kostof S 1991 *The City Shaped: Urban Pattern And Meanings Through History* (London: Thames And Hudson Ltd)
- [4] William M 1999 *Sejarah Sumatra* (Bandung: Remaja Rosda Karya) (In Indonesia)
- [5] Trancik R 1986 *Finding Lost Space* (New York: Van Nostrand Reinhold Company)
- [6] Lynch K 1961 *Good City Form* (Massachusetts: The MIT Press)
- [7] Budihardjo E 1997 *Lingkungan Binaan dan Tata Ruang Kota* (Yogyakarta: Andi) (In Indonesia)
- [8] Lynch K 1960 *City Sense And City Design* (Massachusetts: The MIT Press)
- [9] Schulz C N 1980 *Genius Loci: Towards A Phenomenology Of Architecture* (London: Academic Editions)

- [10] Breen A And Rigby D R 1994 *Waterfronts: Cities Reclaim Their Edge* (New York: McGraww-Hill)
- [11] Henri C And Hasan M A 1999 *Panggung Sejarah: Persembahan Kepada Prof. Denys Lombard* (Jakarta: Yayasan Obor Indonesia) (In Indonesia)
- [12] Shirvani H 1985 *The Urban Design Process* (New York: Van Nostrand Reinhold Company)
- [13] Zahnd M 1999 *Perancangan Kota Secara Terpadu: Teori Perancangan Kota dan Penerapannya* (Yogyakarta: Soegijapranata University Press) (In Indonesia)
- [14] Rapoport A 1977 *Human Aspects Of Urban Form: Towards A Man-Environment Approach To Urban Form And Design* (England: Pergamon Press Oxford)
- [15] Koentjaraningrat 1999 *Manusia Dan Kebudayaan Di Indonesia* (Jakarta: Jambatan) (In Indonesia)
- [16] Muhadjir N 1992 *Metodologi Penelitian Kualitatif* (Yogyakarta: Rake Sarasin) (In Indonesia)
- [17] Hornby F W And Jones M 1991 *Settlement Geography* (Melbourne: Cambridge University Press)
- [18] Evers D & Korff R 2002 *Urbanisme di Asia Tenggara: Makna dan Kekuasaan dalam Ruang-ruang Sosial* (Jakarta: Yayasan Obor Indonesia) (In Indonesia)