



ANALYSIS OF MENTAL MAPPING IN URBAN DESIGN FOR THE CASE OF KAMPUNG TELUK KECIL, PANGKOR ISLAND

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ABSTRACT

This study investigates and identifies the urban design elements in Kampung Teluk Kecil, Pangkor Island, and an observation on the architecture and urban settlements of the area influenced by the Dutch colonizers. The study is conducted to approach the five main urban design elements namely path, edges, district nodes and landmarks. Through observation and open-ended interviews, the urban design elements were identified. Based on the findings, the case study is considered as inland water village where the linear dwelling patterns were built along the bay. Besides that, due to their scattered housing formation where the urban design pattern is known as disorientation. This study shows that urban design elements are not adopted since there is no proper design of urban planning. Therefore, an appropriate urban design method should be referred to as the future to improve the urban settlement of the village.

Disciplinary: Architecture and City Planning, Southeast Asia History.

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1. INTRODUCTION

Urban design elements draw together the numerous strands of place-making-environmental obligations, social values and economic feasibility. Urban design is derived from, however, rises above related issues, for example, arranging and transportation arrangement, structural plans, economic development, landscape and engineering (Moughtin et al., 2003). Urban design is like painting an area to become a dream city in the future (Sassen, 2009). Based on a book Image of The City written by Lynch (1960), there are a few elements we need to consider while designing and identify a city. Based on the book, a citizen can successfully react in his environment as well as communicate and interact with the other citizens. By characterizing a smart city as portrayed through a visual nature of open spaces, a pleasant city can be an image for the public. This character

enables the city to be perceived and organized into coherence design, for instance, the city's points of interest, a pattern of streets and district that can assemble and effortlessly distinguishes. The objective is to investigate urban design elements for the case study of Kampung Teluk Kecil, Pangkor Island in the formation of mental maps namely paths, edges, districts, nodes and landmarks Lynch (1960).

2. LITERATURE REVIEW

Urban design draws many strands of place-making-environmental responsibility, social equality and economic viability. Based on a study of the image of the city by Lynch (1960), five main elements of urban design contribute to the formation of the mental image. Tan et al. (2019) investigate urban design elements of fisherman villages at George Town, Penang, Malaysia.

2.1 URBAN DESIGN ELEMENTS

Five main elements can be identified in the case study area seems to be a public image of an urban area to show a good quality of the mental mapping of a city. These elements include paths, edges, districts, nodes and landmarks (Lynch, 1960).

2.1.1 PATH

The path is a direction to channel a point to another point like alleys, canals, pedestrian and highway. The path is something that links and addresses the connections between people and places by considering the people's needs to access jobs and critical services. There are three components to enhance the paths within an urban, which are identity, continuity and quality of direction. The continuity in paths is something that can be measured by a concentration and variation of activities along with it, which will lead the inhabitants by following the mainstream of traffic (Moughtin, 2007). Besides, the similarity of names can also contribute to their continuity. The importance of paths can be identified by the materials or elements of building such as pavement textures and plantings. Moreover, the road width and narrowness can be recognized to create wayfinding of the image of the city. The designing of paths within a city should blend with the surroundings to avoid the problem of wayfinding difficulties.

2.1.2 EDGES

Edges act as a boundary to separate between two different phases, such as the sea and the land. It is the linear elements that create the boundaries of the place, which contributes to a sense of place by forging links with surrounding areas. For example, shores, railroad cuts, edges of development and walls. Generally, edges are an element that separates two or more areas that have the degree of differentiation, be it by a natural boundary such as topography, viaducts and rivers, or artificial forms such as highways, greenbelts, elevated motorways or waterfronts.

2.1.3 DISTRICTS

The district is a section of a city including the two-dimensional extent. It is represented by a separation line to indicate the different functional spaces of an area. Common examples include commercial areas and residential areas. Differences of the typologies can be the component of the district that can control the quality of the image of the city. Besides that, the characteristics of the district must be continuous and homogeneous in terms of facade's materials, forms, symbols,

textures, building types, inhabitants, activities, skyline topography as well as colors. The primary clue of the city is generally identified by these features which help to generate intimacy between its constituent segments.

2.1.4 NODES

Node is a strategic area or place that becomes a spot for public activities. The highest concentrations of activity emerge as points of convergence. Locations, nature of streets network and overall densities will influence the variations in the size of the activities. Nodes are not necessary to have a specific form. The users can recognize nodes, which are objectless. The nodes can be more memorable if its elements have value-added fixtures such as lighting, colour, planting, type of activities, etc. Excellent public facilities or amenities must be provided for human comforts such as street furniture and a public toilet. All this component usually easy to found in a central park as a place for community gathering.

2.1.5 LANDMARKS

Landmarks can be anything like a point reference. Contrary to nodes, a landmark is something that visually outstanding and unique objects. Among notable examples are buildings, statues and mountains. Make people quickly find the way around. Moreover, the landmarks will emphasize the hierarchy of a place. According to Salmi (2002), tourists who cannot read and understand the native languages typically rely on the city's landmark to mark and remember their paths. Useful landmarks can be identified by their ability to stand out from other physical elements of the environment as well as their character and element of colour, size, height, location and visibility. They act as places of spatial decision making by the public in the city, and they unnecessarily must be located at a focal point since they are easy to recognized and create a strong figure-image of a city.

2.2 SELECTED CASE STUDY

Kampung Teluk Kecil is located on the south coast of Pangkor Island of Malaysia, see Figure 1 which is one of the largest islands and the most beautiful islands in Malaysia. It takes a 1.9km or 6-minute drive from Pangkor Island Jetty or a 25-minute walk from the Pangkor Island Jetty (Figure 1). The Dutch colonized the Pangkor Island in colonial times. The traces of the Dutch settlement in Pangkor Island can be identified at the fort that was built during the Dutch era to control the Perak tin trade the fort today has now become an area of the tourist attraction (Mat Raschid, 2010).

The urban design patterns of the Kampung Teluk Kecil are mainly categorized as linear in the south of Pangkor Island along the bay (Hassan, 2004). The culture and architecture in the case study area have been greatly influenced by colonization by the Dutch (Hassan, 2010). Therefore, the objective is to identify the quality of the existing urban design elements at Kampung Teluk Kecil, Pangkor Island by adopting Kevin Lynch's approach which including the five urban design elements path, district, node, edges and landmark.

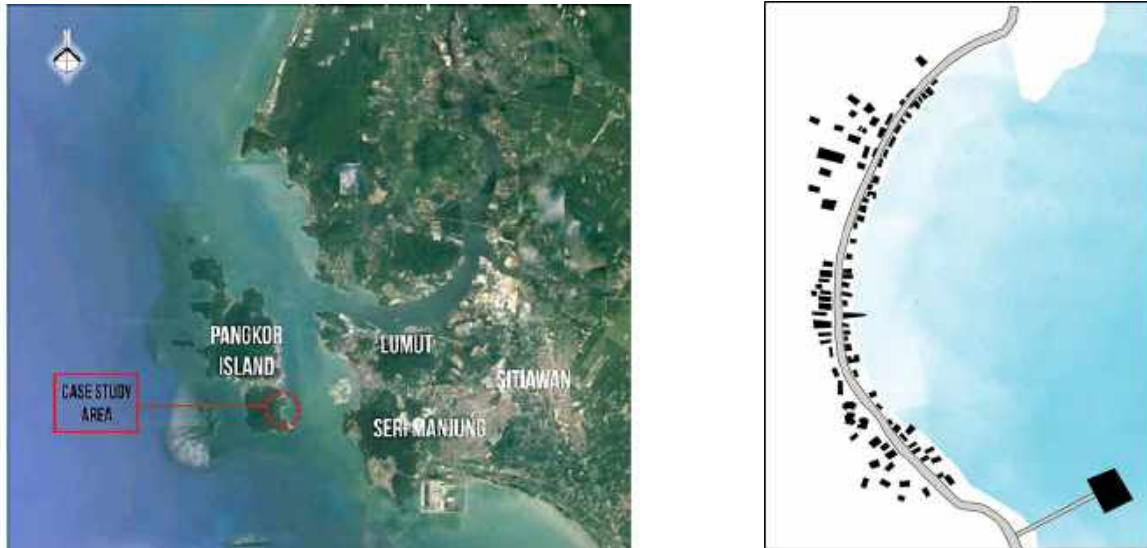


Figure 1: Key plan and layout plan of Kampung Teluk Kecil, Pangkor Island, Malaysia (Geolocation 4.200125, 100.576156; Courtesy of Google Earth).

The layout patterns of the urban area (Figure 1) have two types which are linear and scattered (Hassan, 2004). The north and south part of the study area can be categorized as a scattered pattern while in the middle part as a linear pattern (Hassan & Hassan, 2001). All the buildings are built facing the main road to allow a good vehicle movement for the villagers since no traffic congestion occurs in the village. Most buildings do not exceed two storeys in height and have similarities in terms of architecture, materials and colour. The sea east view becomes the best panorama from the building, while the west view has a beautiful mountain view (Ghollasimood, 2011).

3. METHODOLOGY

By referring to the quality of the urban elements, a qualitative method was used as a research approach of the study. A fieldwork study by a site visit to Kampung Teluk Kecil, Pangkor Island had been done to collect and matched the data on the quality of urban design elements for a record in the layout plan. For example, qualitative research had been used by Lynch (1960) as his research methodology to identify the urban design elements in three American cities, i.e. Boston, Jersey City and Los Angeles. Besides that, Lynch methodology focused on five elements, namely path, edges, districts, nodes and landmarks. This theory showed the relationship between both locations of the case study and the community's navigation through the places.

Furthermore, qualitative research is also used to understand the quality of mental mapping of the case study area of Kampung Teluk Kecil, Pangkor Island. By observing the site of the case study, the quality of urban design elements in the site can be understood. Other than that, a cognitive mapping of the site gives a strong visualization of five elements of urban design.

4. ANALYSIS

Referring to the five urban elements, the mental mapping of Kampung Teluk Kecil can be determined. Through observations, there are several urban elements identified which create the urban settlement of Kampung Teluk Kecil as depicted in Figure 2.

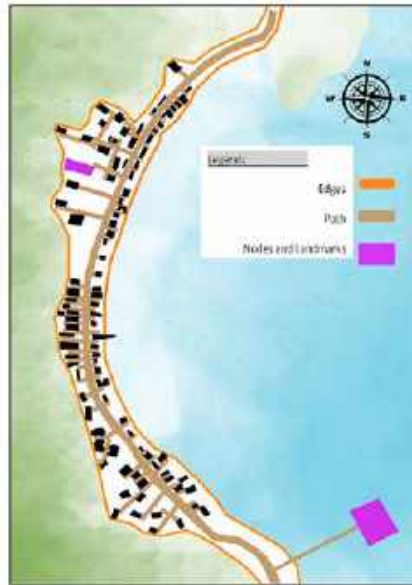


Figure 2: Urban Elements in Kampung Teluk Kecil.

4.1 PATHS

Based on Lynch (1960), the path is considered as the most critical element in urban design, and it is the first element designed in any plan. Users can identify the path of Kampung Teluk Kecil, Pangkor Island. There are three types of paths, which are arterial road, local road and pedestrian walkway. The arterial road is highlighted in red, which is the primary access for the villagers connecting the Pangkor Island Jetty to Kampung Teluk Kecil, see Figure 3. These roads are considered as the main factor in creating the mental mapping of the study area. They are connected to a series of local roads (brown colour) which connect the residential area with the main road and allow freely vehicle movements since there is no traffic congestion in this area. The main road is designed with a gateway as a starting point or entrance of Kampung Teluk Kecil, see Figure 4.

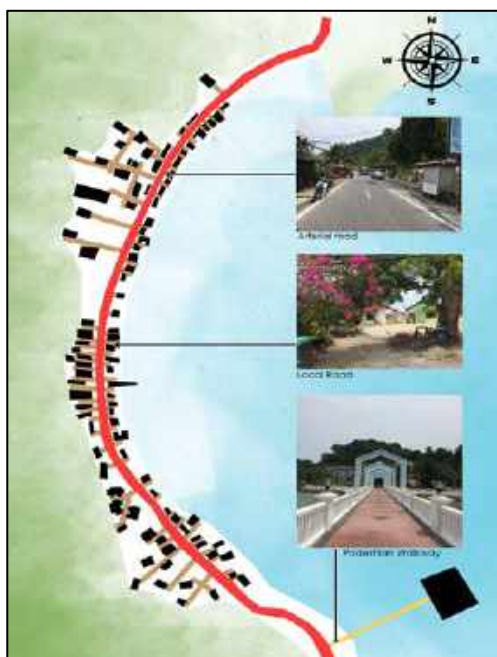


Figure 3: Paths in Kampung Teluk Kecil



Figure 4: A gateway as an entrance of Kampung Teluk Kecil, Pangkor Island.

Usually, the characteristics of the roads are based on the size of the road length and width. But, in this area, the road is commonly designed to accommodate a low-density population, so the width of the road remains relatively small as compared to the roads in the city since the area is just a rural area. All types of vehicles are sharing the same road as the primary access. At the same time, a proper pedestrian walkway is provided for the public, especially for the tourist, see Figure 5.



Figure 5: Images of the arterial road and pedestrian walkway in Kampung Teluk Kecil, Pangkor Island

4.2 EDGES

Lynch (1960) defined edges as linear elements that act as boundaries between two kinds of areas and serve as lateral references. The natural terrain and typology of Kampung Teluk Kecil indicate edges. The coastal line on the eastern side and the forest on the western side from the site's edges. The seawater elements that separate the island and the land become the large edges as shown in Figure 2. Also, a linear line of houses and buildings with a seamless boundary of the arterial road creates an edge and become a boundary that separates the building on the east and west side.

4.3 NODES AND LANDMARKS

Based on the observation, several areas or buildings can be classified as landmarks. The floating mosque located in the south of the case study area, Masjid Badr Seribu Selawat, is one of the major nodes (Figure 8) in this area for the Muslim community to perform their pray especially on Friday. The mosque was designed with a significant blue coloured gateway as an entrance and also a decorated blue coloured dome that makes it more beautiful, see Figure 9. The features, characteristics, size and colour of the mosque make it easy for the public to recognize the building as the landmark of the area. Since the mosque itself is located beside the main road and easy to be seen by the public. Moreover, the mosque is open daily for local and foreign tourists to visit and appreciate the design and uniqueness of the mosque. Because of that, there are many Muslims, and non-muslim tourists visit the mosque, and it becomes a secure node and landmark for Kampung Teluk Kecil.



Figure 8: Nodes and Landmarks in Kampung Teluk Kecil.



Figure 9: Masjid Badr Seribu Selawat: the floating mosque of Pangkor Island.

Besides that, the Dutch Fort also is one of the nodes at Kampung Teluk Kecil. It is considered a historical building that gives a sense of attraction for the tourist to visit that place. The architecture of the building makes it different from other buildings. The building was designed by using a reddish clay brick during the colonization era of Dutch, now become a historical landmark for the area. The characteristic and colour of the Dutch fort, Figure 10, itself make it one of the memorable landmarks in this area. Because of the colour and the different architectural styles, the Dutch fort becomes a landmark for Kampung Teluk Kecil.



Figure 10: Dutch Fort from the entrance.

The floating mosque and the Dutch Fort are the nodes as well as the landmarks for the villagers. The reason is that these buildings are strategically located in the area that becomes a spot for public activities. Furthermore, the architectural styles of the buildings are different from other buildings in Kampung Teluk Kecil and make both structures as influential nodes and landmarks of the area. The floating mosque of Pangkor Island is located on the southern side of the study area while the Dutch Fort is located on the northern side of Kampung Teluk Kecil.

5. DISCUSSION

The overall master plan of Kampung Teluk Kecil shows irregularity in its planning. As Kampung Teluk Kecil is a tourist attraction place, the area could be seen as properly planned and laid out based on the elements of urban design.

5.1 PATHS

The paths of Kampung Teluk Kecil show a linear pattern and easy access for the villagers with all the types of roads carefully laid out to avoid congestion. The arterial roads were designed properly linear along the bay and connecting the residential area with the north side of the Pangkor island, especially to the Pangkor Island Jetty. Interestingly, the paths in Kampung Teluk Kecil curvilinear patterns that surrounded by the villagers' house and public building. The separation of arterial roads and collector roads are distinctive, and the intersections of each residential are located strategically to avoid the issue of traffic congestion.

5.2 EDGES

Kampung Teluk Kecil in Pangkor Island has clear and distinct edges. It is located nearby nature (Ghollasimood, 2011), costal linear on the eastern side and mountains of on the western side (Sulaiman et al., 2018). The road also marks an edge bordering the eastern and western side of the residential area.

5.3 DISTRICTS

Based on the observation, it is clear that there are no districts that can be determined on the physical ground plan of Kampung Teluk Kecil. Most of the buildings are the residential building

types with a linear pattern in the middle of the Kampung Teluk Kecil while the scattered pattern on the northern and southern sides.

5.4 NODES

The nodes in Kampung Teluk Kecil is clearly can be classified as a tourist attraction. The Dutch Fort and the floating mosque have unique features and physical uniqueness to be an attraction and public gathering places.

5.5 LANDMARKS

The landmarks of Kampung Teluk Kecil are becoming the image of the place. Both floating mosque and Dutch fort are prominent landmarks that emphasis the hierarchy of the place. The buildings are points of reference for the users to indicate their location, especially for the tourists.

6. CONCLUSION

A few urban design elements exist in the Kampung Teluk Kecil village, Pangkor Island. All the urban elements give an image of urban design development for the village. But, numbers of the urban design elements in Kampung Teluk Kecil should be improved by providing particular aspects and facilities, e.g., the signboard of a famous building can be proper and comfortable seen by the visitors, mainly foreign and local tourists, to indicate the direction of the building. Furthermore, improvement in infrastructures needs to be made to create a better urban settlement in the future, to separate the community area and the residential area to become a clear district for Kampung Teluk Kecil. Cultural diversity is a unique factor in Malaysia and can be improved by providing excellent infrastructure for the tourism industry. Finally, the interaction between foreign and local tourists with the community will result in a more positive image of tourism and strengthen the efforts to turn Malaysia into a premier world tourist destination.

7. AVAILABILITY OF DATA AND MATERIAL

Information can be made available by contacting the corresponding author.

8. ACKNOWLEDGEMENT

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