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EXAMINING THE BUILT FORM IN SEREMBAN TOWN FOR TOWN-PLAN ANALYSIS

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Abstract:

This paper examined the built form in Seremban town at the urban tissue scale to establish a basis for town-plan analysis of its historic urban core. A buffer was created around each location centre of 25 areas within the boundary of Seremban town (Bandar Seremban), defining an area considered to cover a walking distance of 500m radius; the urban tissues of 13 areas were selected for analysis. The location centres were identified based on geospatial data from the Department of Survey and Mapping Malaysia obtained in November 2020. Two distinct morphological characters exist in the current town plan of Seremban – the grid-iron (regular) and organic (irregular) patterns. The grid-iron pattern is predominantly visible in the historic urban core while the organic pattern dominates on the periphery. Also, areas identified within the boundary are sparsely distributed in the northern part while in the southern area, they are densely clustered. Therefore, the highest number of overlaps in the northern area is three, whereas up to six are identified in the southern area. This paper is a unique analysis of the built form with two distinct morphological characters. It is important in town-plan analysis of the urban form in Seremban as the study is context specific.

Keywords:

Seremban, Urban Form, Built Form, Town Plan, Morphological Characters

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Introduction

Built form is the collection of physical man-made features of a settlement and it is the most tangible, persistent and all-encompassing aspect of the urban form (Kropf, 2014). It serves as a reference base that ties the other aspects of the urban form together (Kropf, 2009, 2014; Moudon, 1997). As such, it stands as a starting point for urban morphology (study of urban form). Meshed in the built form are morphological characters. These characters are important in urban morphology because they provide an avenue for contextualisation, self-reflexivity and thick description (Tracy, 2013, 2020) in the analysis of the built form.

In Seremban, the morphological characters appear to be lacking research considerations, making understanding the built form through town-plan analysis difficult. For example, streets, plots and buildings are the basic elements of morphological characters (Kropf, 2014, 2017). However, their relationships to provide unique characters are context specific because of factors like culture, social and political leanings and topography; these characters were not examined in Seremban. Therefore, this paper aims to examine the built form in Seremban town at an urban tissue scale to establish a basis for town-plan analysis of its historic urban core. The subsequent sections of the paper considered the research design, then the findings and discussion and finally the conclusion.

Research Design

A 500m radius buffer was created around each location centre of the 25 areas within the boundary of Seremban town (Bandar Seremban) to define an area considered to cover walking distance; the urban tissues of 13 areas were selected for analysis. The concept of walking distance was considered as it portrays how long people are willing to walk (King et al., 2005); this is within 5-10 minutes and it is equivalent to 400-800m depending on a person's speed. This was confirmed to be applicable in Malaysia (Yap & Goh, 2017). Also, based on a method called "people following", a study in Pasir Gudang mentioned 500m as the maximum distance people walk, which takes two to five minutes (Syed Mahdzar, 2013, p. 108:13).

The location centres were identified based on the geospatial data (MY701T) from the Department of Survey and Mapping Malaysia (*Jabatan Ukur dan Pemetaan Malaysia*, JUPEM) obtained in November 2020. This set of data contained settlement point locations, street (road) networks, plot series and building footprints. The data set was significant as it contained the minimum elements (streets, plots and buildings) for town-plan analysis. These provided the basis for examining the built form in Seremban in terms of its morphological characters. The combinations of the streets, plots and buildings were analysed as they revealed the predominant morphological characters in Seremban town.

Findings and Discussion

In examining the built form in Seremban, two distinct morphological characters were identified in the current town plan of the urban landscape – the grid-iron (planned) and organic (unplanned) patterns (Figure 1). These categories of patterns were identified in Agirbas and Ardaman (2015), and Kostof (1991).

Figure 1(a) shows that the grid-iron pattern is predominantly visible in the historic urban core while the organic pattern dominates in the periphery. Also, areas identified within the boundary are sparsely distributed in the northern part while in the southern area, they are densely clustered. In addition, Figure 1(b) shows the urban landscape with a 500m buffer around each

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of the 25 areas. These buffers tend to overlap depending on their closeness to one another. The highest number of overlaps in the northern area is three whereas up to six are identified in the southern area. Considering this finding in terms of the clustering of the 500m buffers, building density tends to be high around the historic urban core. This may be due to its status as a starting point of modern development. This suggests the importance of the urban core for in-depth town-plan analysis. Therefore, the historic urban core seems to provide a rich avenue for detailed town-plan analysis of the emergence and evolution of the urban form in Seremban.

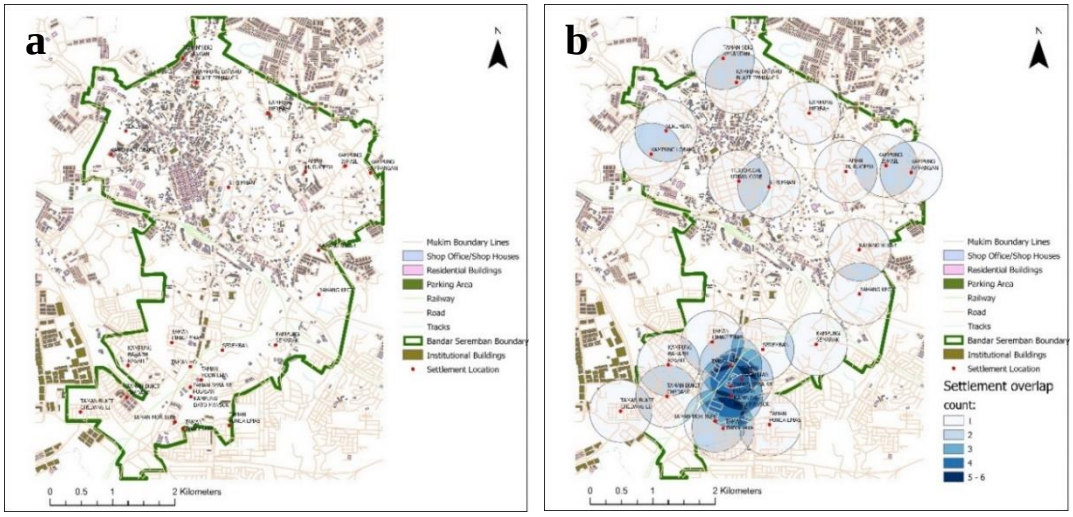

Figure 1: The Current Urban Landscape of Seremban Town at Lower Resolution Level. (a) Street Patterns, Plot Series and Building Footprints; (b) Settlement Locations with 500m Buffer Each.

The Grid-Iron Urban Tissues

As the grid-iron pattern can be regular or irregular (Whitehand & Gu, 2007), Figure 2 shows the urban tissues of four settlements – Taman Bukit Chedang, Taman Bukit Chedang II, Taman Seri Kenangan and Taman Thivy Jaya respectively. These urban tissues in the 500m radius buffers exemplify the grid-iron street pattern. Buildings within these buffers tend to align with the orientation of the streets and street blocks. However, a few buildings do not seem to align with the street block orientation. In addition, in terms of residential building density (Hollander, Johnson, Drew, & Tu, 2019), Taman Bukit Chedang and Taman Thivy Jaya are characterised by sparse development while Taman Seri Kenangan seems to be more of a dense development. However, Taman Bukit Chedang II indicates the nearly non-existence of residential buildings within the 500m buffer.

In Taman Bukit Chedang, 25 residential and two institutional buildings were captured within the 500m radius buffer (Figure 2a). While Taman Seri Kenangan (Figure 2c) consists of 151 residential and six institutional buildings, Taman Thivy Jaya (Figure 2d) has 18 residential and two institutional buildings. The administrative town (*bandar*) boundary cuts slightly into its buffer. This signifies that the settlement is at the edge of the town. Similarly, the boundary cuts almost 50% across the buffers encircling Taman Bukit Chedang II (Figure 2b), Taman Seri Kenangan (Figure 2c) and Taman Thivy Jaya (Figure 2d). Considering their urban morphological characters, the regular rectilinear street patterns predominate in Taman Bukit Chedang, Taman Bukit Chedang II and Taman Thivy Jaya while the non-regular rectilinear patterns are dominant in Taman Seri Kenangan.

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Figure 2: The Grid-Iron Urban Tissues. (a) Taman Bukit Chedang; (b) Taman Bukit Chedang II; (c) Taman Seri Kenangan; (d) Taman Thivy Jaya.

The Organic Urban Tissues

Organic urban tissues are seen as products of an "unplanned evolution" (Kostof, 1991) due to sprawling development. However, in some situations, this may not be so. Figure 3 shows the urban tissues in Kampung Lobak, Kampung Merbah, Seremban Lake Garden and Taman Murugesu respectively. These tissues exemplify the organic urban morphological characters. Unlike the grid pattern tissues, the organic urban tissues are oriented randomly and tend not to align with the buildings in certain instances. Considering the number of residential buildings within the 500m buffer, Taman Murugesu (Figure 3d) has the highest (being 139) among the four settlements, followed by Kampung Lobak (Figure 3a), which has 128 while Seremban Lake Garden (Figure 3c) and Kampung Merbah (Figure 3b) have 94 and 46 respectively. Taman Murugesu has the highest residential density while Kampung Merbah has the lowest. Furthermore, within the buffer Kampung Merbah has 17 institutional buildings, the most in this category of urban tissue; Kampung Lobak and Taman Murugesu each have two institutional buildings while Seremban Lake Garden has three. As Kampung Lobak is close to the town's administrative boundary, about 25% of the buffer is outside the boundary.

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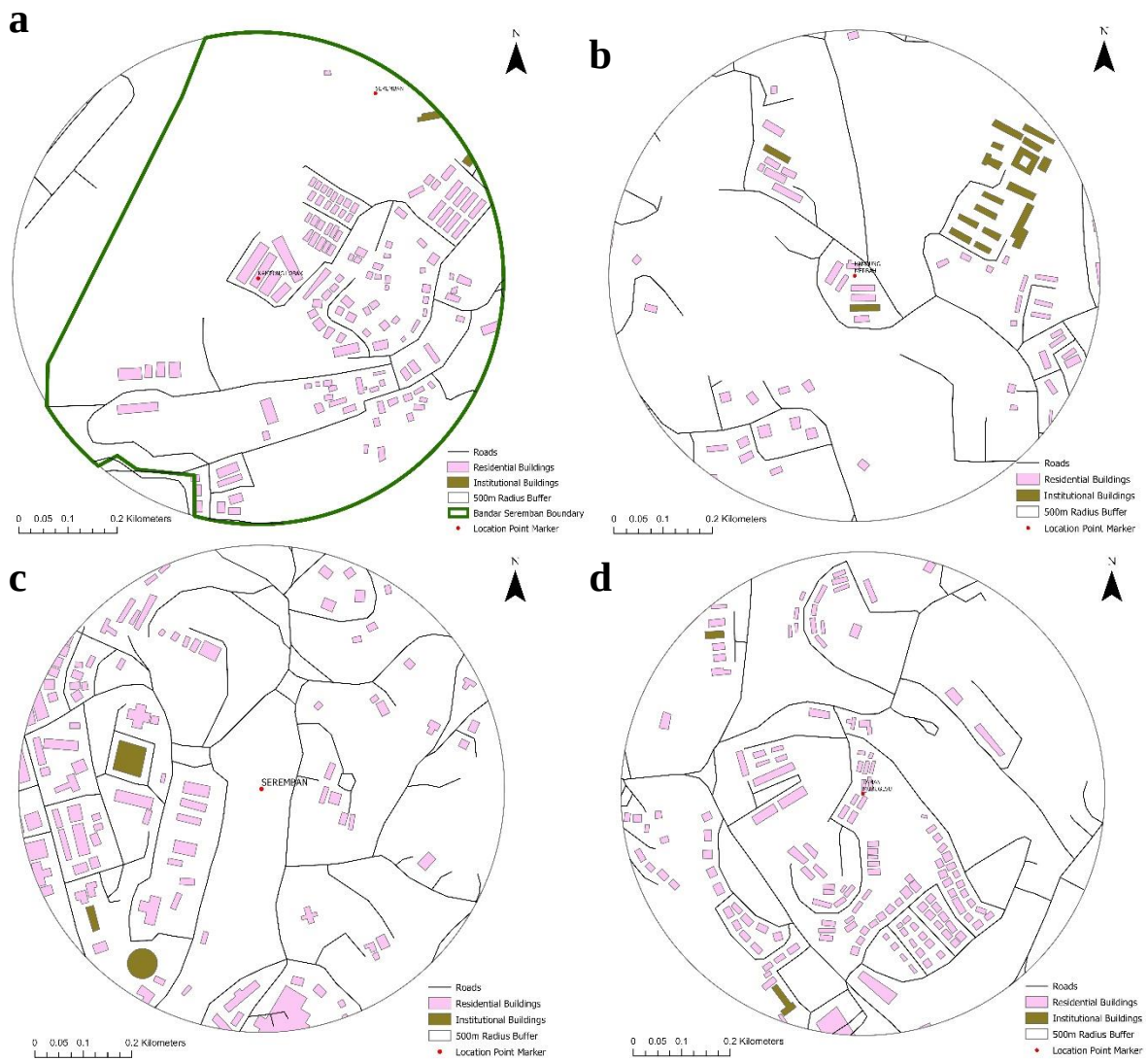

Figure 3: The Organic Urban Tissues. (a) Kampung Lobak; (b) Kampung Merbah; (c) Seremban Lake Garden; (d) Taman Murugesu.

The Hybrid Urban Tissues

The hybrid urban tissues combine grid and organic patterns. When the four selected urban tissues in this category are considered, Kampung Baharu Bukit Temiang (Figure 4a) has the most residential buildings (248), followed by Lobak (Figure 4c) with 187. While Rahang Besar (Figure 4b) has 82 residential buildings, Taman Mok Sum (Figure 4d) has 19 which is the lowest among the four. The residential density for this category follows the same pattern as the organic urban tissues, with Kampung Baharu Bukit Temiang being the densest and Taman Mok Sum being the least dense. Furthermore, Kampung Baharu Bukit Temiang has four institutional buildings within the buffer, the highest in this category of urban tissue, followed by Lobak with three and Taman Mok Sum with one. Since Rahang Besar, Taman Mok Sum and Lobak are close to the town's administrative boundary, about 25%, 20% and 15% of their buffers are outside the boundary respectively. Looking at the urban morphological characters, the grid-iron patterns are dominant in the south and south-east within Rahang Besar (Figure 4b) and Lobak (Figure 4c) buffers respectively, but dominant in the centre and north-west in Kampung

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Baharu Bukit Temiang (Figure 4a). Meanwhile, the organic patterns predominate in the south and east within Kampung Baharu Bukit Temiang. Also, they predominate in the north and north-east in each of the other two buffers (Figures 4b and 4c). In the same sense, a regular rectilinear grid-iron pattern predominates in Taman Mok Sum (Figure 4d).

Figure 4: The Hybrid Urban Tissues. (a) Kampung Baharu Bukit Temiang; (b) Rahang Besar; (c) Lobak; (d) Taman Mok Sum.

The Historic Urban Core

The historic urban core represents the old town centre and it was where the modern development began. In most cases, this is considered to be an urban fabric of historical significance (Larkham & Jones, 1991).

In Seremban, the historic urban core started expanding from one street to a morphological region (Inusa, Toe, & Thai, 2019). This area contains the majority of the town's oldest structures, lending historical significance to the urban core. This region should be considered as an area of tangible heritage and, therefore, requires preservation. Figure 5 shows the urban tissue of the historic urban core of Seremban town (Bandar Seremban). It is characterised by a

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predominantly regular rectilinear grid-iron urban morphological street pattern. This is indicative of a planned urban tissue. Within the 500m buffer, the historic urban core contains 193 residential and 3 institutional buildings. The residential density seems to be the highest of all the selected areas. The grid-iron pattern is concentrated in the western part of the buffer while the eastern part seems more organic.

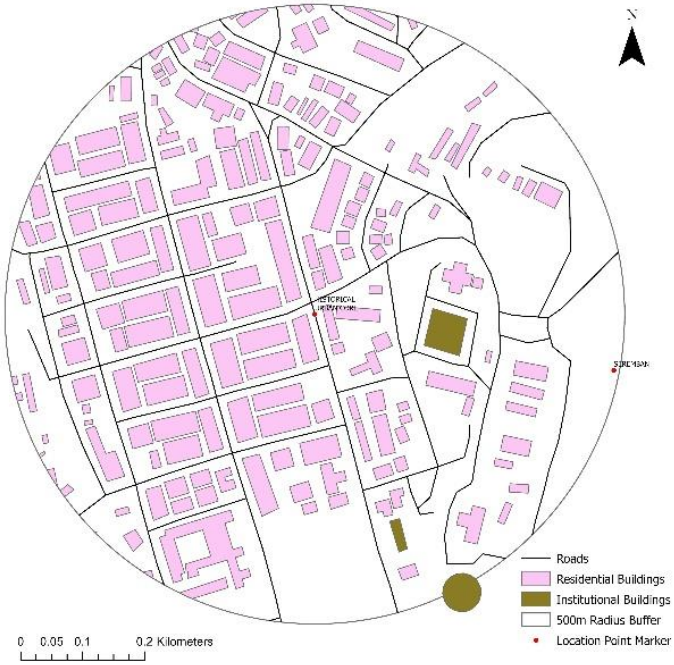

Figure 5: The Historic Urban Core in Seremban Town.

Conclusion

As this paper aimed to examine the built form in Seremban, 500m buffers were created around 25 locations, among which the urban tissues of 13 areas were selected for analysis. These revealed grid-iron and organic patterns as the main morphological characters of the built form in Seremban town. Also, the historic urban core, which is predominated by the grid-iron morphological character, has a significant position. This suggests that it is an important location requiring in-depth town-plan analysis to unravel the heritage value of the town's historic urban core.

This paper is a unique analysis of the built form with two distinct morphological characters. However, the limitation of this study is the focus on the current built form of Seremban town and understanding of its morphological character in the context of 25 locations from which 13 areas were selected and analysed within the town boundary. Therefore, there is a need to further examine the emergence and evolution of the urban form in Seremban through town-plan analysis of the historic urban core by considering its morphological periods which is estimated to have started as early as 1874 and extended into the current state of the built form examined in this study.

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References

Agirbas, A., & Ardaman, E. (2015). A Morphological Comparison of Urban Tissues of Trani and Galata. *Journal of Architecture and Urbanism*, *39*(4), 232–247. https://doi.org/10.3846/20297955.2015.1113899

Hollander, J., Johnson, M., Drew, R. B., & Tu, J. (2019). Changing urban form in a shrinking city. *Environment and Planning B: Urban Analytics and City Science*, *46*(5), 963–991. https://doi.org/10.1177/2399808317743971

Inusa, Y. J., Toe, D. H. C., & Thai, C. Y. (2019). Assessing Seremban townscape using the town-plan key concepts. In *Proceedings of the 1st International Graduate Conference of Built Environment and Surveying 2019* (Vol. 3, pp. A142–A149). Johor Bahru, Malaysia: Universiti Teknologi Malaysia.

King, W. C., Belle, S. H., Brach, J. S., Simkin-Silverman, L. R., Soska, T., & Kriska, A. M. (2005). Objective measures of neighborhood environment and physical activity in older women. *American Journal of Preventive Medicine*, *28*(5), 461–469. https://doi.org/10.1016/j.amepre.2005.02.001

Kostof, S. (1991). *The city shaped: Urban patterns and meanings through history*. London: Thames and Hudson.

Kropf, K. (2009). Aspects of urban form. *Urban Morphology*, *13*(2), 105–120.

Kropf, K. (2014). Ambiguity in the definition of built form. *Urban Morphology*, *18*(1), 41–57.

Kropf, K. (2017). *The Handbook Of Urban Morphology*. West Sussex, UK: Wiley.

Larkham, P. J., & Jones, A. N. (1991). A glossary of urban form. *Historical Geography Research Series - Institute of British Geographers*, *26*.

Moudon, A. V. (1997). Urban morphology as an emerging interdisciplinary field. *Urban Morphology*, *1*, 3–10.

Syed Mahdzar, S. S. (2013). Streets for people: Sustaining accessible and sociable streets in Pasir Gudang City Centre. In Y. O. Kim, H. T. Park, & K. W. Seo (Eds.), *Proceedings of the Ninth International Space Syntax Symposium* (pp. 108:1–18). Seoul, Korea: Sejong University.

Tracy, S. J. (2013). *Qualitative Research Methods: Collecting Evidence, Crafting Analysis, Communicating Impact*. West Sussex, UK: Wiley-Blackwell.

Tracy, S. J. (2020). *Qualitative Research Methods: Collecting Evidence, Crafting Analysis, Communicating Impact* (2nd ed.). West Sussex, UK: Wiley-Blackwell.

Whitehand, J. W. R., & Gu, K. (2007). Extending the compass of plan analysis: A Chinese exploration. *Urban Morphology*, *11*(2), 91–109.

Yap, J. B. H., & Goh, S. V. (2017). Determining the potential and requirements of transit-oriented development (TOD): The case of Malaysia. *Property Management*, *35*(4), 394–413. https://doi.org/10.1108/PM-06-2016-0030