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Urban Settlement Typology of Solo
(1500s-2000s)

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ABSTRACT

The objective of the research is to reveal a city as urban settlement diversity. This study explored the type and the form of urban settlements which were growth in the last 500 years in Solo. The object of study was approached by a rationalistic research. The method of research was carried out by a three-archive: (1) primary files; (2) secondary files; and (3) physical files. This study found some urban settlements that had a strong character as follows: Javanese, Chinese, Arab, and the Dutch. The findings of this research is the urban settlement typology which has developed in a three-step as follows: early period (1590s-1750s); middle period (1750s-1950s); and the latest period (1950s-2000s). In the early period, the primary urban settlement of Solo was begun in Pesanggarah Ki Solo, the first Javanese settlement along river Bengawan Solo, near port of Nusapen in 1590s; the next urban settlements were constructed not only by Javanese but also by the people from many countries (Arab, Chinese, and the Dutch); and the latest urban settlements were constructed by many people from the urban-rural citizen of Surakarta. The other findings of this research are the urban settlement typology in the early period has developed in a three-pattern as: linear, cluster, and central, while the latest urban settlement found another pattern as: organic, gridiron, and cul-de-sac. Besides, according to its facade typology, the urban settlement in its district has a specific sign as: a high-fence in nobles Javanese settlement; a side-entrance in Arab settlement; a curve-roof in Chinese settlement; and a tell-house in Dutch settlement.

Keywords: typology; urban, settlement; solo

1. Introduction

Solo (also known as Surakarta) is a town on the island of Java, Indonesia. Geographically, this town is located at 110° 45' 15" - 110° 45' 35" East and 0° 70' 36" - 0° 70' 56" South. Laid between the mountain Lawu and Merapi, Solo is a lowland area (92 meters above sea level). The temperature is between 21.9 and 32.5 degree Celsius. There are three main rivers in Solo: Bengawan Solo, Peppe and Jenes (see Fig. 1). According to the administrative area, Solo occupied in the province of Central Java. It is surrounded by the province of East Java, West Java and Yogyakarta. There are 44 km square area and 552,542 citizens in 2005.

Solo is originally an ancient city which grows into one of modern cities in Indonesia (presenting malls, apartments, high rise buildings, etc.) while maintaining its cultural heritage. The Kingdom of Mataram Surakarta was established in Solo in 1743. The Kingdom of Surakarta had been the last monarchy of Mataram (the biggest and the longest Javanese kingdom) before it was separated, as we saw nowadays, into a four-palace as: Karunian Surakarta, 1743 (Palace of Paku Buwono or PB); Kasunanan Yogyakarta, 1755 (Palace of Hamengku Buwono or HB); Mangkunegaran Surakarta, 1757 (Palace of Mangku Negoro or MN); and Pakuwonan Yogyakarta, 1812 (Palace of Paku Alam or PA) (Lambard, 2005).
Surakarta, one of the oldest cities in Indonesia, has an extraordinary urban culture and ancient architecture. The urban settlements have developed since the 1500s. There were not only from Javanese but also from Chinese and Arab population (see Fig. 1). The city of Solo, which has been developed by many people from many countries, is being a cross-culture-city. Besides, having surrounded by a four-palace (Pajang, Ketut Wangi, Mangku Negara, and Paku Buwono), the city of Solo is a unique-Javanese-culture. Solo, known as the spirit of Java, has become one of the most popular heritage tourism cities in Indonesia. The existence of Javanese kingdom (Mataram) is still appearing in Solo until now (PB XIII). According to the previous research, the beginning of Solo is found at Port of Nusapan, near to the river of Bengawan Solo in 1500s. Firstly, Solo was actually a waterfront-city, having developed in 250 years, the urban activities were being moved to the land by the Kingdom of Mataram and the Dutch. Lastly, Solo has been developed in the both sites.

2. The Research Question

How has the typology of urban settlement been developed in Solo from 1500s to 2000s?

3. The Objectives of Study

The objectives of this study are to reveal the development of form (morphology) and to identify the type (typology) of urban settlement which has been developed in Solo.

4. Review of Related Literature

Morphology

The word morphology stems from the Greek word morphos, meaning form. Morphology is the branch of biology which deals with the form and structure of animals and plants. Morphology in architecture, analogy with biology, is the study of form and structure of the space and built environment (Rose, 1979). Morphology is concerned with the plan and build of habitat, viewed and interpreted in terms of its origin, growth and function. Morphology of the town is a
reflection of its function and the ideas of planning and building at each phase of its development. The study of morphology in architecture deals with the process of rise, stand and open of building in the environment (Steadmen, 1981).

Typology

Typology in architecture can simply be defined as a concept which describes a group of objects characterized by the same formal structure (Monroe, 1978). The study of typology in architecture deals with the type of space and built environment. To raise the question of typology in architecture is to raise a question of the nature of the architectural work itself. To answer it means, for each generation, a redefinition of the essence of architecture and an explanation of all its attendant problems. A work of architecture has to be considered in its own right, as an entity in itself. That is, like other forms of art, it can be characterized by a condition of uniqueness. From this point of view, the work of architecture is irreducible within any classification (Rossi, 1982).

Urban Settlement

City is the most complicated that have ever been created by human (Cohen, 1999). City can be defined as the place that contains buildings, land and people. The process of city can be found either by organic or artificial. The structure of the city can most simply be identified as 'skeleton' (street, railways, duct, etc.), 'meat' (buildings) and 'blood' (the activity of citizen) (Golany, 1995). Urban settlement is the part of city that contains buildings and land which are used by the citizen for living. Urban settlement is, in Indonesia especially, the housing district which is having some special characters as follow: the inhabitants have a-rural-behaviour; the buildings have a-high-density; the land has a-bad-condition. Urban settlement is always developed from a-rural-settlement which appears in the past time (Dalıjoeni, 1997).

Conceptual Theory

The beginning of the old city is always developed by the urban settlement. The city is always characterized by a non-agricultural activity of its inhabitants. In Solo, it has been developed by many people from many countries in many periods. They have lived and died from one generation to another generation in many interests. Having for the long time, the type and the form of its urban settlement has been established and developed in many differences. The process of rise, stand and open of the urban settlement is the term of morphology, while the character and the type of urban settlement is the term of typology.

5. Methodology

The research was conducted by a rationalistic inquiry. The main frame of rationalistic inquiry were referring to the several theories from documents (literatures, concepts, thinkers, etc.) and exploring to the purposeful sample from empirics (field surveys, archives, interviews, etc.). Both of them are being done by a reflective activity. The objects of the research are the urban settlements which are growth in the last 500 years and approach by a benchmarking map. As a historical study, the method of research was carried out by a-three-archives primary files; secondary files and physical files.

The primary files were collected from Indonesian documentaries: (1) puristah; (2) undang-undang; (3) pranata; (4) pently; (5) kapakah; and (6) hukum. They were mostly found in the library of Kasman, Mangkunegaran and Surakarta. The secondary files were collected from historian and researcher documents: (1) Ricklevi; (2) Hoeben; (3) Lombard; (4) Nas; (5) Vanstenouwen; (6) Poblinkwono XII; (7) Muljana; (8) Nutalmo; (9) Kartodikko; (10) Sjaj; (11) Ngadiro; (12) Ronald; (13) Ikapersa; (14) Adhikasti; (15) Muriah; (16) Priatmono; (17) Azzahra; (18) Setyowani; and (19) Wangen. They were mostly found in the library of university (UMS Surakarta, UGM Yogyakarta and UNS Surakarta). Furthermore, the physical files (architects) were collected by field surveys (see Fig. 2).
Figure 2 Photos and Map of the Various Artefacts of Solo in 2000s
(Source: Modified from earth.google.com and Field Survey, 2009)
6. Discussion

Urban Settlement Morphology

Solo stems from the Javanese word Ki Sorak, meaning chief of laborers (Sajid, 1984). He lived and worked with his workers for Pajang in the near river Bengawan Solo, on the north of port Nusapan. Based on this data, the process of urban development in Solo was equal to the period of Kadipaten Pajang, the part land of Demak. According to pranata (king's regulation) no. 4 (PB-II, 1726), kadipaten was the land which was occupied by the vice of king known as adipati. While according to pranata no. 84.1 (HIS-V, 1759) adipati was the leader of panyada (chief of regencies), king (chief of regent); rangga or tunanggang (chief of villages); and demang or bokeq (chief of village) (Mangkana, 2004).

According to the secondary files, the early settlement in Solo was established in Kampung Laweyan (1500s), Pajang (1550s) and Solo (1550s). Afterwards, the Chinese and Arab lived in Solo in 1600s. The Chinese lived on along river Kali Pepe, near port Pepe, while the Arab lived along river Kali Jenes, near port Jenes. Solo became a city when the Mataram kingdom moved to Kampung Solo in 1745. To protect and to serve the King, Kampung Baluwarti and Kuman was built in surrounding to the palace. Afterwards, the Dutch began to build some houses in 1750s, around the fort of Pastenburg. After the Treaty of Salatiga (1757) had happened, Solo had a new kingdom, Kumanan and Mangkunegaran. And afterwards, Kampung Keprobon was arisen (see Fig. 2) (Rickletis, 2005).

After Independence Day (1950s), Solo or Surakarta was divided into five districts as: Banjarsari; Laweyan; Sorengan; Pasar Klunom; and Jembrana. The first district was Mangkunegaran ex-territory, while the four latest districts were Kumanan ex-territories (see Fig. 3). According to primary files, Banjarsari has 16 sub-districts, Laweyan has 11 sub-districts, Sorengan has 7 sub-districts, Pasar Klunom has 9 sub-districts, and Jembrana has 11 sub-districts. From 1750 to 1950, the city of Solo was developed by the King of Paku Buwono (PB), the Vice-King of Mangku Negoro (MN) and the Dutch. Afterwards, from 1950 until now, the city of Solo was developed by the mayor.

The urban settlements have developed in many areas since 1950s. Following the industrial era, the urban settlements have developed in three types as: horizontally; vertically; and interstitially. Having installed the urban utilities (railways, streets, bridges, electricity, water, etc.), the urban settlement developed not only by individual but also by the mass models (developers). The individual model developed on around the old urban settlement, while the mass models developed in some urban-rural areas. The mixed model was developed in between of them. The examples of individual models are: Kampung, Gajahmung; Jayagung; Sorengan; Demak/Kuman; Gadisuwak; Jayakaning; and the examples of mass models are: Solo Baru; Fajar Indah; Mojoenggo Housing; Palur Housing, while the examples of mixed models are: Sumber; Fajar; Dawun; and Tipas.

According to the analyses above, the morphology of urban settlement in Solo (from 1500s to 2000s) can be identified as a three-period as follows: the early period (1500s-1750s); the middle period (1750s-1950s); and the latest period (1950s-2000s). In each period is identified as the embryo, the growth and the maturity of the city. The morphology of urban settlement in Solo from 1500s to 2000s can be drawn as follows (see Fig. 4):
Figure 4: The Three Periods of Urban Morphology of Solo:
(1) 1500s-1750s; (2) 1750s-1950s; (3) 1950s-2000s
(Source: The author, 2009)
Urban Settlement Typology of Solo

Referring to the map (see Fig. 4), the early period (1500s-1750s) of urban settlements in Solo was: Kampung Laweyan, Kampung Pajang, and Kampung Solo. According to the site where the urban settlement appeared, it can be identified into 3 types: beside the river (Kampung Solo), near the river (Kampung Laweyan) and far from the river (Kampung Pajang). In each site it is identified as linear, cluster and central pattern. Afterwards, according to its inhabitants, they had 3 types of social status: laborer or low status (Kampung Solo), businessman or middle status (Kampung Laweyan), and noble or high status (Kampung Pajang).

In the middle period (1750s-1950s), the Chinese settlement established on the沿河Kali Pape, near port of Pepe, while the Arab settlement established on the沿河Kali Jene, near port of Jenes. Furthermore, the Dutch and the Javanese noble surrounded to their leader. According to the place where the urban settlements appeared, they had 3 types of site: near their port (Kampung Arab, Kampung Cina), near their bastion (Kampung Eropa, Kampung Jatuprawit), and near their leader (Kampung Kawan, Kampung Kerpabon). The urban settlements have developed in the same pattern as the previous (linear, cluster and central). Afterwards, according to its inhabitants, they had 3 types of race: European (the Dutch, English); Asian (Chinese, Javanese); and African (Arab, Indian).

In the latest period (1950s-2000s), the typology of urban settlement has developed in many patterns. According to the direction of developing, there was a tree-type urban settlement growth: horizontally, vertically and interstitially. Furthermore, according to the site of developing area, there was a tree-type location: in the old urban-settlement between urban and rural area; and in the rural area. The first and the second type were developed by individual inhabitant, while the last type was developed by the company or government. According to the analysis above, the urban settlement typology of Solo can be identified as following scheme (see Table 1 and Fig. 5):

<table>
<thead>
<tr>
<th>No.</th>
<th>The Name of KAMPUNG</th>
<th>The Type of SITE</th>
<th>The Type of PATTERN</th>
<th>The Type of USER</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Kampung Solo</td>
<td>Beside the river</td>
<td>Linear</td>
<td>Civil society</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Near the river</td>
<td>Cluster</td>
<td>(the labours of port Kampung)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Far from the river</td>
<td>Central</td>
<td>(the industrialist of cloth)</td>
</tr>
<tr>
<td></td>
<td>Kampung Laweyan</td>
<td></td>
<td></td>
<td>Noble society</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(the family of the king)</td>
</tr>
<tr>
<td></td>
<td>Kampung Pajang</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Kampung Cina</td>
<td>Near their port</td>
<td>Linear</td>
<td>Asian (Chinese, Javanese) and African (Arab, Indian)</td>
</tr>
<tr>
<td></td>
<td>Kampung Arab</td>
<td>Near their leader</td>
<td>Cluster</td>
<td>Javanese religious, noble and army</td>
</tr>
<tr>
<td></td>
<td>Kampung Kawan</td>
<td>Near their bastion</td>
<td>Central</td>
<td>European (the Dutch, English) and Javanese noble or army</td>
</tr>
<tr>
<td></td>
<td>Kampung Kerpabon</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Kampung Eropa,</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Kampung Jatuprawit</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Kampung Komlayan,</td>
<td>In the urban-settlement area</td>
<td>Organic</td>
<td>The native people</td>
</tr>
<tr>
<td></td>
<td>Kampung Gajahin,</td>
<td>Between urban and rural area</td>
<td>Cul-de-Sac/ Linear</td>
<td>The native and urban people</td>
</tr>
<tr>
<td></td>
<td>Kampung Jayengan</td>
<td>Our the urban-settlement area</td>
<td>Linear</td>
<td>The native, urban and rural people</td>
</tr>
<tr>
<td></td>
<td>Kampung Daueng,</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Kampung Jalar,</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Kampung Sumber,</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Kampung Tjipang</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Solo Baru Housing,</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Veyer Indah Housing</td>
<td></td>
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<tr>
<td></td>
<td>Housing, Mojopongo</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Housing, Pakar</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(Source: The author, 2006)
(1) The Typology of Urban Settlements of Solo in the Early Period (1500s-1750s)

(2) The Typology of Urban Settlements of Solo in the Middle Period (1750s-1950s)

(3) The Typology of Urban Settlements of Solo in the Latest Period (1950s-2000s)

Figure 5 The Typology of Urban Settlements of Solo (1500s-2000s)
(Source: The author, 2018)
According to the race of population, there are four types of urban settlement in Solo. Firstly, there was the Chinese settlement. It mostly found in CBD areas (Pasar Gede, Cemara, Gading etc). Secondly, there was the Arab settlement which was found in Pasar Kidjawan. Thirdly, there was the Dutch settlement which was found in some places around the Port of Yostenburg. Nowadays, the built environments of the Dutch are occupied by the government buildings of Solo. The last type of settlement is Javanese nobly settlement which was found in Kasunanan, Mangkunegaran and Laweyan.

According to its artefact (see Fig. 6-9), in each race has a specific sign which is found in its built environment. The Chinese settlement is always found a-curve-roof, while the Javanese nobly settlement is always found a-high-fence. Furthermore, the Arab settlement shows a-side-entrance, while the Dutch settlement shows a-tall-house (Java: jogi, from ‘lodge’). According to this analysis, the type of those signs can be identified as Table 2 as:

<table>
<thead>
<tr>
<th>No.</th>
<th>Race</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Chinese</td>
<td>A-Curve-Roof</td>
</tr>
<tr>
<td>2.</td>
<td>Arab</td>
<td>A-Side-Entrance</td>
</tr>
<tr>
<td>3.</td>
<td>The Dutch</td>
<td>A-Tall-House</td>
</tr>
<tr>
<td>4.</td>
<td>Javanese Nobly</td>
<td>A-High-Fence</td>
</tr>
</tbody>
</table>

(Source: The author, 2008)
7. Conclusion and Recommendation

This study finds that the urban settlement morphology of Solo has developed in three periods: (1) the early period (1500s-1750s), identified as the embryo era; (2) the middle period (1750s-1950s), identified as the growth era; and (3) the latest period (1950s-2000s), identified as the maturity era. In the early period, urban settlements have been found in Kampung Laweyan (rise in 1500s), Kampung Pajang (rise in 1550s), Kampung Solo (rise in 1550s), Kampung Arab (rise in 1600s), Kampung Cin (rise in 1600s). In the middle period, urban settlements have been found in Kampung Bawasari (rise in 1750s), Kampung Kauman (rise in 1750s), Kampung Depo (rise in 1750s) and Kampung Kepabon (rise in 1760s). Afterwards, in the latest period (1950s-2000s), urban settlements have been found in the three types of locations: (1) in the urban area (examples: Kampung Kemlayan, Jayen, Serengan, etc); (2) between urban and rural area (examples: Sumber, Jajar, Dawang, Tipen, etc); and (3) in the rural area (examples: Solo Bum Housing, Fujak Indah Housing, Maj碳pa Housing, Palar Housing, etc).

This study also finds that the typology of the urban settlement has developed in 2 types: (1) an-linear-cluster-central pattern, found in both the early and the middle period; (2) a-organic-gridiron pattern, found in the latest period. Besides, according to each race, the urban settlement has a specific sign which is found in its built environment. The Chinese settlement is always found a-curve-roof, while the Javanese noble settlement is always found a-high-fence. Furthermore, the Arab settlement shows a-right-entrance, while the Dutch settlement shows a-tall-house (Java: Loji). Furthermore, during the latest 500 years old, this study finds that the urban settlement has developed in horizontally, vertically and intersectually in which is done either by the individuals or the mass models (developers and government).

The recommendation of this research is that further researches could be conducted in the several old cities from the island of Java (such as: Yogyakarta, Jakarta, Surakarta and Semarang, Bandung), to find out the variant of typology of urban settlement.

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