

# The Application of Local Concepts on Herman Thomas Karsten's Town Planning

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## ABSTRACT

In this era of globalization, there is an interesting phenomenon in urban development. Many parts of the city are chaotic in their development, but there are cities that are fixed, unchanging. Semarang city is one that has not changed due to the times. Semarang city was planned by Herman Thomas Karsten as a modern city starting in 1916. Herman Thomas Karsten (1884-1945) is a Dutch architect who has worked as an architect and city advisor since his arrival in Indonesia in 1916. Karsten's most complete work is located in Semarang City. Karsten's work covers the town planning of Semarang city and the architectural design of buildings. History shows the fact that architectural works that survive are those that have a local aspect in their design concepts. This fact also happened to Semarang city. Through a literature review on city theory, architecture and local aspects, and by taking the case of Semarang city as a modern city by Karsten, it can be seen that the application of local concepts in Karsten's work, as well as the relationship between local concepts and primary elements of city in Karsten's works. This study aims to interpret Karsten's concept of thought, explore all local aspects in urban planning, which influence Karsten, and reveal the dominance of local aspects found in the case study. This research provides benefits for the scientific development of architecture, and provides new insights to the academic community about the importance of local aspects to architectural work. This research makes it clear that a city will survive if its town planning applies local concepts. As for the community, this research contributes to helping the creation of a new built environment for cultural heritage artifacts through a good architectural conservation work strategy.

**Keywords:** Local concept; the primary elements of the city; Karsten; Karsten' works

## Introduction

The formation of cities in Indonesia cannot be separated from the role of Ir. Herman Thomas Karsten. Akihary made a summary note stating that Karsten had about forty-seven works of architecture and town planning in various cities in Indonesia. Of the forty-seven works, twenty-three of Karsten's works were in Semarang City (Akihary, 1988: 99) [1]. From this data, it can be said that almost 50% of Karsten's works are in Semarang City. The conclusion obtained from Akihary's notes is that Karsten has the most town planning and architectural design works in Semarang City when compared to other cities in Indonesia.

The existing research on Karsten, in general, is a study, research, about Karsten working as an architect and city advisor in the Dutch East Indies. This is related to the political, economic and social situation that occurred during the Karsten era at that time.

During the Dutch colonial rule in Indonesia, the settlement of Semarang City was planned based

on race or ethnicity, and Semarang City was divided into colonial city areas, Chinatown areas and Kauman areas. All of this was built without any thorough planning, this process was the initial stage of the formation of the city of Semarang. In 1910 Gemeente Semarang City planned to expand the city, and assigned Karsten to plan the expansion of Semarang City.

To find out the position of this research, a review was carried out of the previous studies which were found related to Karsten's concept of thinking in planning a city. There are not many writings on Karsten, therefore scientific papers must be selected from studies, dissertation research, and scientific papers from journals, about Karsten with all aspects that influence Karsten's thinking.

Based on the phenomenon of the existence of a local aspect that is thought to be related to Karsten's work, this research focuses on the local aspect of Karsten's work. Thus the specific issue in this study is the application of local concepts to Karsten's urban design in Semarang City. This issue has never been discussed in architectural research. Thus, novelty research is a new

framework for theoretical reading tools in the form of an elaboration of combining descriptive urban morphotypology, tissue and local concepts; and new understanding of the application of local concepts to urban planning in all case studies.

Based on these facts, the formulation of the problem of this research is to interpret Karsten's concept in general based on the existing literature and field facts. This study aims to identify and reveal all the relationships that exist between the aspects of Karsten's thinking and local concepts in all case studies. The benefit of this research is to provide new insights to the academic community, namely as input in building architectural knowledge, new theories, new theoretical concepts in order to reveal all the relationships that exist between aspects of town planning and local concepts.

Ir. Herman Thomas Karsten is a Dutch architect and town planner. Karsten left Europe in 1914. He committed himself to a career in Indonesia, he lived and worked in Indonesia for 30 years (Coté, 2017: 11) [2]. When Karsten arrived in Indonesia, there were already several attempts at town planning and housing. Especially the efforts made by local governments after the issuance of the 'Decentralization' policy in 1903, at that time they began to be interested in urban problems, and the same thing happened in the Netherlands after the emergence of the Housing Act ('Housing Act') of 1901, which gradually started to be implemented. In the 1920s - 1930s, Karsten built a reputation as an advisor to town planners; but he is also active as an architect. In this he worked for years for twelve of the nineteen local rulers in Java, for three local rulers in Sumatra and for a local ruler in Kalimantan (Muljadinata, 1994: 1-2) [3].

Several cities in Indonesia that are included in Karsten's planning proposal include: Jakarta, Bandung, Semarang, Surabaya, Malang, Magelang and Sukabumi. Furthermore Karsten's work spread to the cities of Cirebon, Jatinegara, Yogyakarta, Surakarta, Purwokerto, Sumatra (Palembang, Padang and Medan), and Banjarmasin in Kalimantan (Nas, 1986: 74-75) [4]. Based on these facts, it can be concluded that Karsten is a very important figure for the formation of cities in Indonesia. Karsten was the first to apply the town planning concept, which had never before been implemented in Indonesia. In planning the expansion of the city of Semarang,

Karsten planned Semarang as a modern city covering five regions between 1916 and 1924 [5], which has not changed in its development until now. Apart from planning the expansion of Semarang City, Karsten also designed many buildings in Semarang City. Karsten's artefacts include architectural designs and city expansions. So it can be said that Karsten is an important figure who plays a role in architectural design and town planning in Semarang city, as well as in several cities in Indonesia.

Karsten married Mrs. Soembinah, a native Javanese woman, and this brought him to experience and understand Javanese culture (Coté, 2017: 24) [2]. This clearly influenced Karsten's way of thinking in working as an architect and city advisor. The thinking of the Javanese people, with their culture, traditions and customs, has become the wealth of the locality that influenced Karsten. Java has various cultural and artistic beauties that are integrated into the life of its people [6].

Local cultural influences influenced Karsten to work as an architect. In 1917-1920 Karsten had practical experience regarding the building of a joglo house when he was entrusted with being responsible for the expansion of the modification of the Mangkunegara VII palace in Surakarta. Karsten showed great concern for indigenous people and their culture, especially in architecture and urban planning. As an architect, Karsten pays full attention to exploring the potential and sources of traditional local building forms (Muljadinata, Ardianto, 2004: 2) [7]. In some of his works, it is seen that Karsten also wants to learn local wisdom so that he can produce innovative architectural works. Culture in building location and function / designation of buildings is an important element in designing architectural works (Muljadinata, 2018: 12) [8].

## Method

### A. Case Study

The case study was selected empirically on Karsten's work in Semarang, namely selecting architectural works and city expansion that reflect the influence of local aspects in the design. Thus, Karsten's work was chosen which strongly displays the influence of local aspects.

Semarang City as the object of study is the capital of Central Java, on the island of Java in Indonesia (figures 1, 2, 3). The case study is in Semarang City, and there are five case studies, namely: 1). Candi Baru hilly area (1916). 2). Pekunden area, Peterongan, Batan, Wonodri (1919). 3). Sompok area (1919). 4). East Semarang area (1919). 5) Mlaten area (1924).

The case study discussed in this paper is the hilly area of Candi Baru, as Karsten's first work in Semarang City (1916). The case was chosen because the Candi Baru area was the first area planned by Karsten. This area has an altitude of 90 m above sea level, and has very steep land contours. These settlements really reflect local concepts in their planning.



Fig. 1. Indonesian Map.

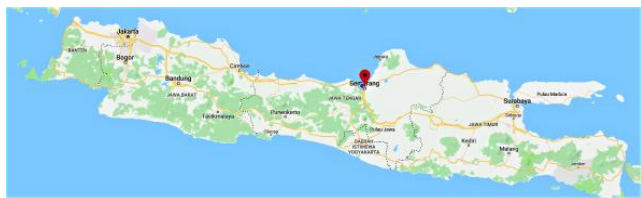


Fig. 2. Map of Java.

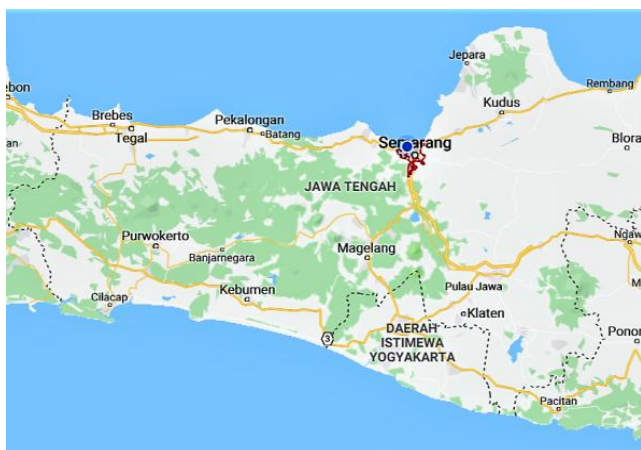


Fig. 3. Map of the Location of Semarang City in Central Java..

## B. Research Operational Methods

### Stage 1.

The determination of physical boundaries in the five case studies in Semarang was carried out

using the Loeckx city tissue theory. The planning map for the expansion of the city of Semarang by Karsten was the starting point for the observation (figure 8). This map shows the five case study areas planned by Karsten, and the discussion focuses on the Candi Baru area.

Through the urban tissue theory approach, one area tissue can be taken, namely the Candi Baru area tissue (Figure 5). With the city tissue theory, the Raadsplein area in Candi Baru can also be discussed (figure 6).

### Stage 2.

In the case of the New Candi area study, observations were made to determine the physical condition of the city (the primary elements of the city), using Rossi's propeller theory.

This stage also exposed the local concepts that influenced Karsten. In addition, this stage also reveals the primary elements of the city in the Candi Baru Area.

At this stage, a cross sectional analysis of local concepts and primary elements of the city in the Candi Baru area was carried out, to find the relationship between local concepts and primary city elements.

### Stage 3.

At this stage, the interpretation of the relation from an empirical condition of town planning is formulated related to the local concept in the city of Semarang.

## C. Data Analysis Methods

The data analysis methods used in this study are as follows:

1. Collecting the planning maps of Semarang City by Karsten is the first step that must be done
2. Analysis of the maps of Semarang City resulted in a morphological map of the formation of the Candi Baru area
3. Furthermore, data processing is carried out by making comparisons between literature to interpret empirical data qualitatively. After this, we can interpret the primary elements of the city and the city tissue found in the Candi Baru area
4. Analysis of the regional arrangement pattern, an important building in the Candi Baru area, gets the role of locality in Karsten's work
5. The conclusion of local concepts is based on a study of Coté's theory, a study of the Javanese

city concept, which is related to the Ordering Principle theory, and a study of the theory of people, place and period. Furthermore, the mapping of primary city elements which are influenced by local aspects is carried out.

## Result and Discussion

### Determination of the Area Boundary of Candi Baru Area.

Karsten made plans for the expansion of Semarang City in the Candi Baru area in 1916. Previously in 1914, the office in the *Gemeenteraad* (municipal government) of Semarang City had a plan as shown in the following map.

In 1910, the health problem for Semarang City was only announced for the first time and in connection with the very serious state of health of the city, it was announced to be repaired immediately. Improving urban health in the lowest plains (lower part of Semarang City) is an impossible task. This caused *Gemeenteraad* use all the funds to exploit the Bukit Candi Baru for residential areas, as the southern boundary of Semarang City.

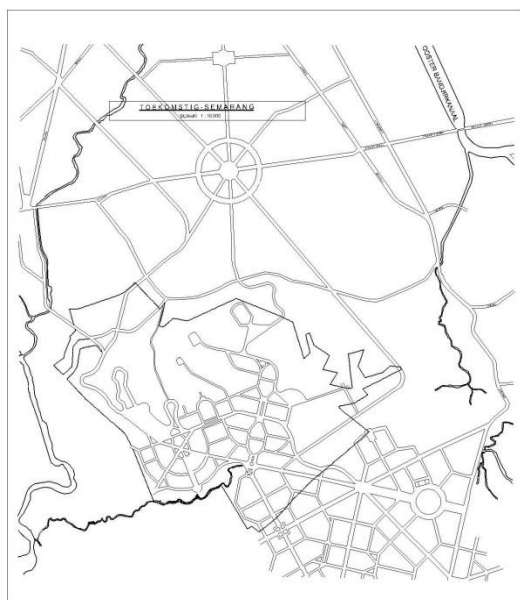


Fig. 4. Map of the initial planning of the settlement of Candi Baru, 1910

Source: Toekomstig Semarang, 1914: 1,2, Redrawing

Furthermore, the planning for the preparation stage of the expansion plan for Semarang City in the hilly area of Candi Baru was made

### 6. Conclusions and recommendations regarding local concepts in Karsten's work.

1: Location of Candi Baru area, south of the Simpang Lima Area

3: Location of Raadsplein / Diponegoro Park

(Toekomstig Semarang, 1914: 1,2), see Figure 4 [9].

Karsten did not use this map as an expansion plan for Semarang City because this map was designed without paying attention to the very steep hilly contours of Candi Baru. Karsten made a design that pays close attention to the contours of the land in the hilly area of Candi Baru (see figure 5).

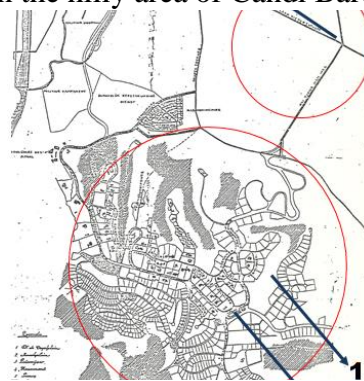


Fig. 5. Planning map of the New Candi area by Karsten

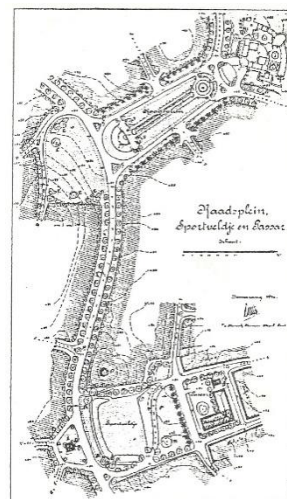


Fig. 6. Map of Raadsplein area by Karsten

In Figure 5 it can be seen that Diponegoro Park is located at No.3, and embryo of Simpanglima is at No.2. Karsten also planned in detail the area around Raadsplein (now Diponegoro Park, roundabout to Elisabeth Hospital), see Figure 6. Based on the map analysis in 1909, the expansion of the city of Semarang has become increasingly clear towards the West and the South (Figure 7). From the map of Semarang City in 1909, it can be

seen that the existing roads are Gajahmada Street, Pandanaran Street and A.Yani Street, and there are no K.H Ahmad Dahlan and Pahlawan streets yet.

The area of Semarang City at that time was much wider than the area of the old city, but in terms of population density, the area of Semarang expansion was still not filled with much development, housing construction only took place on the main road.

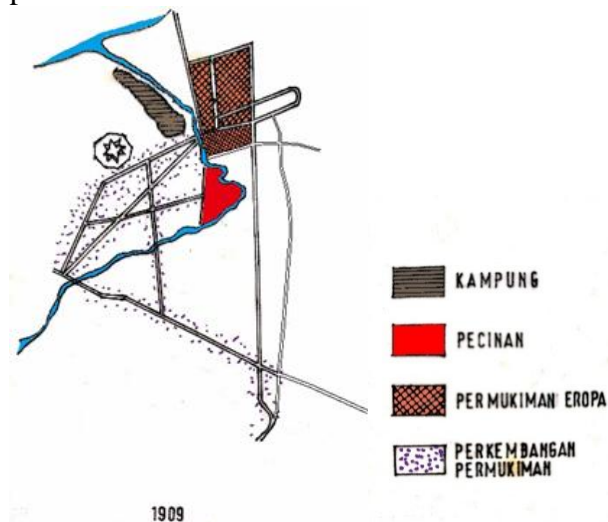


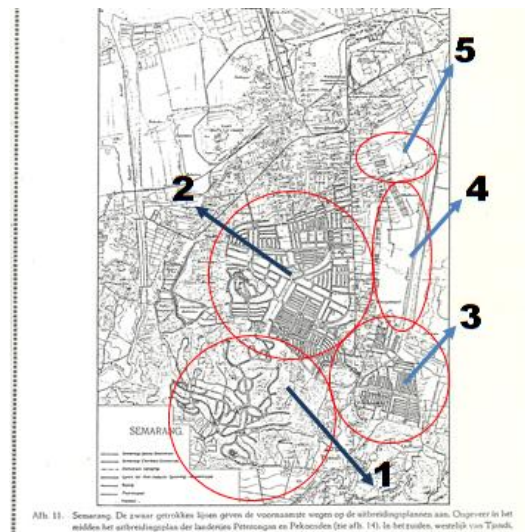
Fig. 7. Morphological Map of Semarang City 1909

It was only when Karsten arrived in 1914 that the area began to be planned as a whole. At an early stage of development, namely in 1916, Karsten planned the hilly area of Candi Baru, which is to the south of Semarang City.

In further developments after the planning of the Candi Baru area, Karsten planned to expand the city of Semarang outside the old city to become a modern city.

After Karsten planned the expansion of Semarang City to other parts of the area, the expansion map of Semarang City designed by Karsten in 1922 became as shown in Figure 8. It is thus concluded that Semarang City as a Modern City was designed by Herman Thomas Karsten.

On the map planned by Karsten in 1922, it can be seen that Seroja Street and also Pahlawan Street (but not yet built). Jalan Pahlawan was designed by Karsten to connect the lower part of Semarang City with the Candi Baru area (hilly area, upper part of Semarang City).



- Note:
1. Candi Baru area
  2. Pekunden, Peterongan, Wonodri area.
  3. Sompok area
  4. Semarang Timur area
  5. Mlaten area

### The Primary Elements of Cities in Urban Development

Karsten argues, the layout of a city consists of three elements, namely: -details, -townscape, -plan as a totality [10]. These three elements must all come together to form an organic unity and coherent.

Details are the artificial and refined of the buildings, road systems, fields, interest centers and parks and city utilities. Each and every detail must be carefully thought out. Different buildings, unity within the surrounding environment, have their own street profile. The streets flowed like a circulation system through the city, arranged and shaped by centers of interest and squares. Public open spaces and plants play an important role in the creation of a townscape.

Townscape is a combination of built form and surrounding layout and should be seen as a side of town-layout aesthetic. As time passed, planners had to ensure that the city had "character". So in this case, planners are required to create a distinctive character from a city.

In plan-as-a-totality, all of these elements are joined together. Town planning must form a unity,

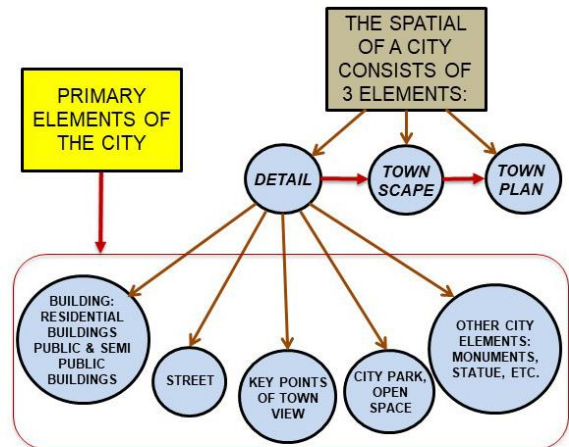
it must provide an indication of the future progress and development of the city. Town planning should not be thought of as a very detailed plan, but as a major planning issue; so made globally by showing grouping or showing city elements in outline. Here the transportation network is drawn in a simple way to show the relationship with one another, it can also be seen how the placement of buildings according to their type, the spread of open spaces. With a city plan like this, Karsten hopes to accommodate the development of the city.

According to Lynch, an image requires: 1) identity in an object or something that is different from others. 2) the structure or pattern of interconnection between the object and the observer. 3) the object has meaning for the observer (Lynch, 1960: 6-8) [11]. Lynch argues, the city always provides an image to its people about the image of the city. The city image is formed by five city elements, namely: path, edge, district, node, landmark and this is directly related to the physical city.

Loeckx argues, that the elements that form a settlement are buildings and spaces. The description of the residential environment is obtained by using building and space elements and their reciprocal relationship with each other. This kind of environment can be defined as a tissue. City is a network that has a view for the morphological interactions of built space and open space (Loeckx, vol.2, 1986: 4) [12]. On the other hand, according to N. Demsey (2010), the elements of urban form are: -layout, -landuse, -transport infrastructure, -density, -housing / building types, these five form the urban form [13].

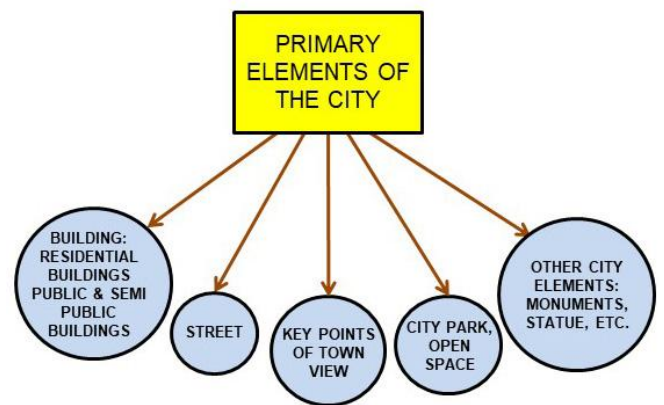
From the analysis of Karsten's thoughts, it can be concluded that long before Lynch published his theory of urban elements (1960), Loeckx (1986), Demsey (2010), Karsten actually had a theory about the primary elements of the city which could be explored in his explanation of Details, but not has been published clearly (see figure 9a). So, in this research I emphasize and state that the primary elements of cities are:

-buildings, -streets, -prompt views of the city, -city parks, -other city elements (monuments, statues, etc.), as shown in Figure 9b.



PRIMARY ELEMENTS OF THE CITY BASED ON DETAIL

Fig. 9a. The primary elements of the city based on the Detail



PRIMARY ELEMENTS OF THE CITY

Fig. 9b. The primary elements of the city

Karsten's concept of the layout of a town became clear when Karsten planned the hilly area of Candi Baru. An example is the Raadsplein / Diponegoro Park area. This area was carefully planned by Karsten (figure 10). The situation has not changed until now.

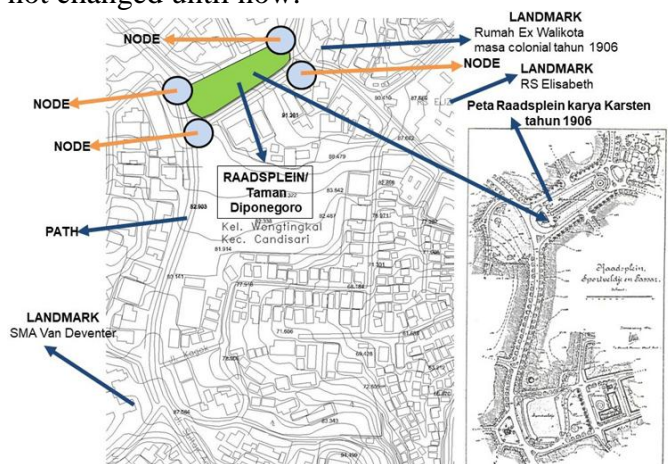


Fig. 10. Raadsplein Area Segmen

## Surface Structure of Primary City Element in Candi Baru area

Karsten planned city elements like nodes, paths and landmarks in this region beautifully. Several buildings at an important point have become landmarks, namely the former mayor's house (Puri Wedari building), the Elisabeth Hospital building. Currently, the potential of Diponegoro Park is so great, it increases the economic sector in this area. Along Diponegoro street, S. Parman street, and Sultan Agung street, there has been a change in the function of buildings, from houses to shops, hotels, offices, restaurants. The surface structure of the primary elements of the Diponegoro Park area can be seen in Figure 11.

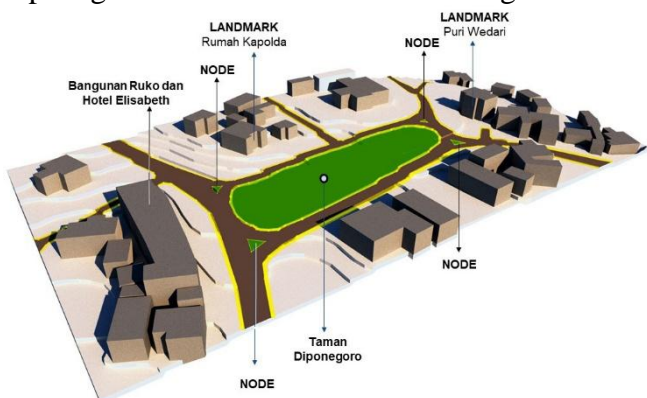


Fig. 11. Surface Structure of the Primary Element in Taman Diponegoro Area

Diponegoro street is the road to Diponegoro Park from the Simpang Lima area and Pahlawan street. At present, economic factors have an impact on changing the function of buildings along Diponegoro street, from residential buildings to hotels, restaurants, apartments, offices.

## The Local Concepts in Town Planning

The local concept is always related to people, place, and period. People/humans are always related to culture, civilization and traditions. Architectural works are always influenced by human traditions. Place is a container, which accommodates all activities. Place is related to geography, topography, climate, natural environment, and the built environment. Time relates to the era in which a work was produced. Thus, the local context becomes a determining factor for architectural and urban works.

Karsten is in the era of modern architecture and garden city, which is the result of the thinking of European / Western figures. This influenced

Karsten's thinking, who also studied Javanese / local thinking. Collaboration of western thought and local thought, resulting in Karsten's local concept. Karsten's local concepts are:

- Significance of Economic Basis
- Environmental Context
- Javanese Thought Aspects.

This was manifested by Karsten in planning the Candi Baru area through careful thinking related to the primary elements of the city, in a beautiful town planning.

## Significance of the Economic Basis

Since the beginning of its planning, the Candi Baru area was a residential area aimed at people with upper economic strata. On the other hand, Karsten arranged the Candi Baru area not only for people with upper economic strata. He also designed housing for the poor in the form of a village with a village house type; there is the application of urban villages. Figure 12 shows residential areas grouped by economic strata.

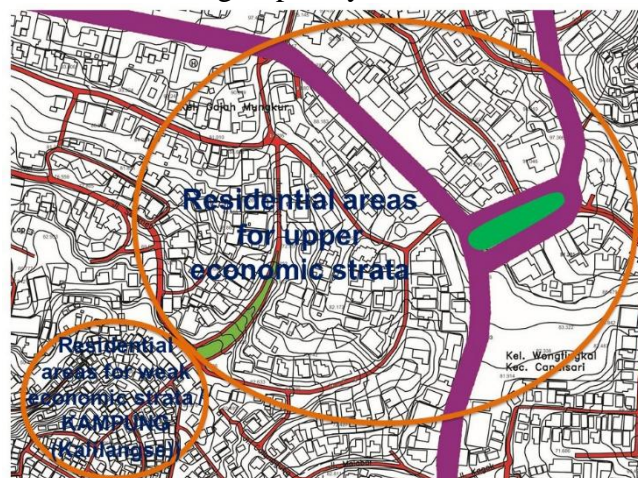


Fig. 12. Typology of land use in the Kalilangse Area

In Figure 13, it is clear that the type of village Karsten worked for. In Modern architectural theory, the terminology of Kampung and architecture of Kampung houses has never been found. Kampung is a wealth of local aspects typical of Indonesia. This can be seen clearly in the form of residential arrangements as in Figure 14.

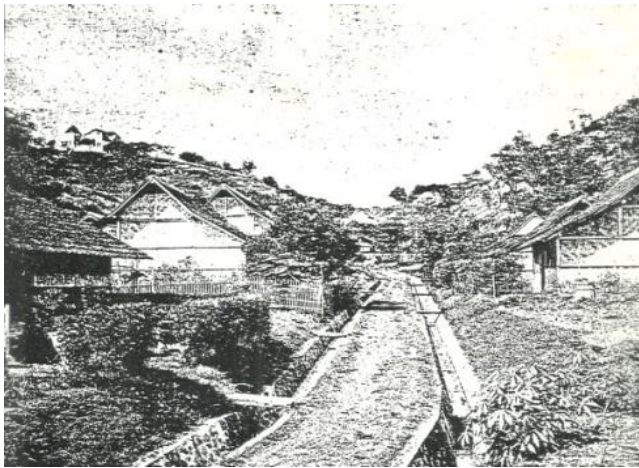


Fig. 13. Kalilangse Kampung for the low economic community in the Candi Baru area, when it was designed by Karsten in 1916



Fig. 14. Kalilangse Kampung Now in 2021

Figures 13 and 14 show a very strong kampung pattern, with single building types and yards.

### Environmental Context

The land of the Candi Baru area has a steep topography, so it has a different urban pattern from other Semarang City areas (see figure 8). Figure 8 shows a curved pattern in the arrangement of the Candi Baru area (no.1), which is different from the arrangement of the other areas (no.2, 3, 4 and 5). This is made clear as can be seen in Figure 12, the topography greatly influenced the planning of the New Candi settlement. The curved pattern in the Candi Baru area is caused by the steep topography of the land in this hilly area. The road is made in a curved pattern following the contours of the land, thus topography is an important local aspect.

The hilly area of Candi Baru when it was planned to be a settlement, was still green hills without occupancy, and most of it was a burial ground. The steep contours of these hills are a big problem in planning this settlement. This steep hilly

condition can be seen in Figure 15. Karsten correctly chose the Diponegoro Park area as the starting point for planning, and became the most important point in the Candi Baru area. Diponegoro Park is the highest point on the hills of Candi Baru, which is 90m above sea level.

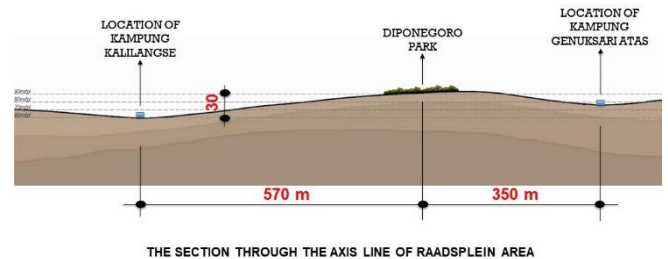


Fig. 15. Candi Baru Land Contour Conditions

Diponegoro Park is one of the largest urban parks planned by Karsten in the hilly area of Candi Baru. Apart from city parks, the buildings in this area which are of the free standing building type, all have large green open spaces, as can be seen in Figure 11. These are all responses of town planning to environmental conditions, also related to the tropical climate.

### Javanese Thought Aspects

When Karsten planned for the settlement of Candi Baru, the land was still empty hills, which were used as burial grounds for the Chinese. This very large hilly area must be planned with a good zoning arrangement.

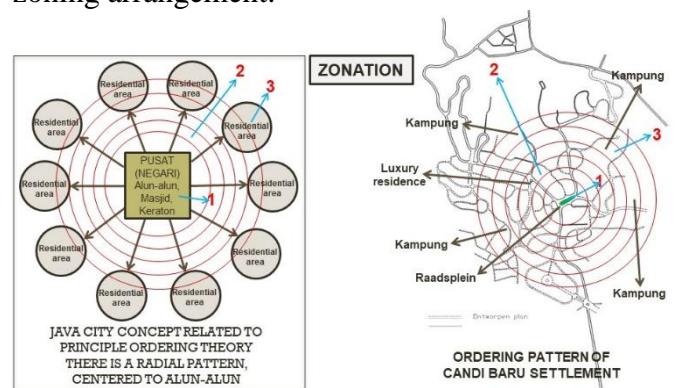


Fig. 16. Analysis of the Arrangement of Candi Baru Settlement Areas

The Javanese zoning tradition shows a radial pattern centered on the square as in the old Javanese city concept. This shows that the zoning consists of 1) Center (Negari) and Alun-alun, Masjid. 2). Hulubalang Residence. 3). People's shelter. The Javanese zoning tradition influenced Karsten in determining the zoning in the Candi Baru area (see Figure 16).



The application of the Javanese Zoning Tradition is clearly analogous to the arrangement of the Candi Baru settlement area. Karsten chose the highest place on this land as the center of the area in the hills of Candi Baru. The highest place is designed to be a fairly large city park, namely Diponegoro Park.

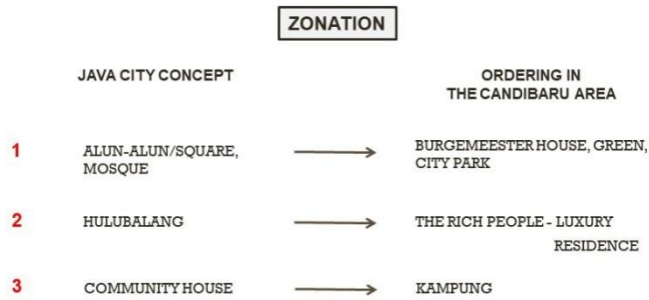


Fig. 17. Zonation Analysis of Candi Baru Area

Based on the traditional Javanese zoning pattern, Karsten created an orientation center, namely Taman Diponegoro, and further from this center of orientation, a radial concentric pattern was planned. Diponegoro Park is analogous to a square. At the end of the Diponegoro Park it was designed for an important building, namely the burgemeester (the mayor at that time) house, which is now the Puri Wedari building which is used as the house of the war commander



Fig. 18. Zonation Analysis of Candi Baru Area\_Section

Puri Wedari is analogous to the palace. Around Raadsplein there are luxurious residences. This luxury residence is an analogy of the residence of the king's hulubalang. This luxury residence spreads to the lower land contours of the land. On the land on the lowest land contour, lies Kampung (such a village). The settlement in this village is an analogy of the people's shelter (see Figure 17, Figure 18 and Figure 19).

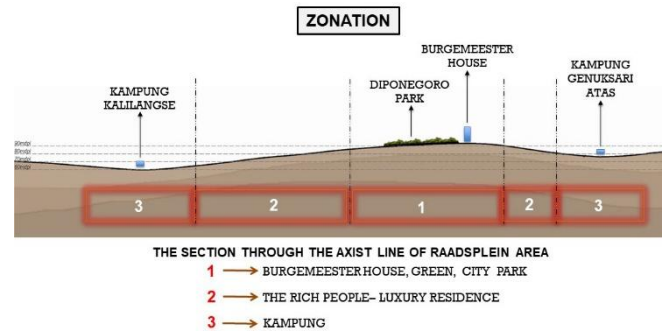


Fig. 19. Zonation Analysis of Candi Baru Area\_Contour Intersection

## Conclusion

Karsten's work in Semarang City is diverse, from town planning to building architecture. In terms of town planning work, there are advantages that have made Karsten's work survive until now. Local concepts related to the Significance of Economic Bases, Environmental Context, and Javanese Thought Aspects, can be clearly found in the Candi Baru area. Overall, the three aspects of the local concept in town planning constitute a contribution to the city theory, the realization of which can be seen in the primary elements of the city.

This study concludes that there is a dominance of local aspects in Karsten's work, and a very close relationship between local concepts and primary city elements.

This research gives new insights to architecture lecturers and students that local aspects are always related to cultural, social and economic aspects, which are very important in architectural design today. Understanding the local aspects and traditional architectural philosophy is a very important provision for an architect. If this becomes the basis for designing architectural works, and is developed with modern methods of designing architecture, then very innovative architectural works will be obtained.

An architect must have knowledge and understanding of local aspects, so that he can produce highly innovative architectural works. Architectural works that are colored by local aspects, are apparently able to survive amid the progress and development of the times. This is a challenge for architectural education in Indonesia today!

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