



## Transforming Semarang: The Legacy of Thomas Karsten in Urban Planning and Architecture

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**Abstract.** The concept of urban planning in the 19th century was differentiated through traditional and modern approaches, but the impact of the Industrial Revolution created new relationships between Urban Planning and other Urban Arrangements such as economic pressures, social and political changes, and urbanization. Before the influence of the Industrial Revolution, industry did not arise in urban areas, but industry grew in the suburbs. The development of Semarang began to grow when the economic system first affected modern capitalism. Many traditional institutions are slowly being replaced by more contemporary ways. According to Thomas Karsten, society is formed by different groups, each with conflicts between themselves, his analysis of this social tendency can be seen in the urban planning process he carried out. The concept is centered on a particular whole, a continuum of organisms in the form of an organic whole. The four main ethnic groups that lived in Semarang during the colonial era were: the Dutch and other Europeans, Chinese, Arabs, and Javanese. By accepting conventions, they live in separate groups according to race. During Karsten's first experience in urban planning, he developed an alternative to this acceptable system that could be applied in Semarang. He introduced the idea of a residential division represented by certain types of housing based on economic status classes such as upper, middle, and lower. He tried to bring different races to live together in the same place when judging from their earning ability. He also pays special attention to Indonesia's tropical climate and emphasizes features that contribute to the overall urban space, such as the planting of vegetables and trees, and the planning of low-density residential areas.

Keywords: urban planning; urban architecture; Thomas Karsten; Semarang

### 1. Introduction

The concept of urban planning in the 19th century was differentiated through traditional and modern approaches, but the impact of the Industrial Revolution created new relationships between Urban Planning and other Urban Arrangements such as economic pressures, social, and political change, and urbanization [1]. Before the influence of the Industrial Revolution, industry did not arise in urban areas, but industry grew in the suburbs. After the Industrial Revolution, urban areas have become a semiotic system [2].

The development of Semarang began to grow when the economic system first affected modern capitalism. Many traditional institutions are slowly being replaced by more modern ways. Several institutions such as lenders, professional traders, and artists emerged in the 19th century [1]. Under the capitalist system, many Western and Chinese merchants achieved prosperity. However, the indigenous population could not follow the new economic system. They lost the traditions and membership that had been given to them within the village. They lost their land and farms ahead of privatization, the owners turned capitalists.

In the first half of the 19th century, because of Western exploitation of Java began to appear. In terms of the economy, the most amazing result was the increase in the population of the island of Java and the introduction of the money economic system. The term 'urbanization' comes from the Spanish word meaning to find a new field of activity [3] which has become a move to urban areas [4]. The term urbanization is always present in all forms of urban planning. In Central Java, when Surakarta and Yogyakarta remained as the center of the royal government, other cities, especially in northern Java such as Semarang, developed mainly in population and area so that they were called the largest colonial cities in Java after Batavia and Surabaya. Concerning colonial architecture and planning, to function effectively, colonialism needed a representative of the city center, even in the most inaccessible areas [5]. Physical and architectural planning that determines the use of building-type space consists of a diversity of shapes, textures, details, and symbols [5]. The characteristics of the exterior of buildings, major roads, and walkways are important information materials in explaining the character of the city. This section therefore concentrates on the physical quality of the building, through the influence of the Dutch architect and planner Thomas Karsten. This research begins with the process of growth of population and is followed by urbanization in urban areas, especially Semarang. How Thomas Karsten tackles planning and architecture problems is a lesson that can be learned to address future problems.

## 2. Methods

This study uses a qualitative method by using document data as primary data. The method used in this study is descriptive, meaning that the research process is entirely described descriptively, while the technique to explain is used in historical research. Thus, the method used is the historical method, namely searching, finding, and testing sources so that authentic and credible historical facts can be obtained. In writing, the facts that are still fragmentary are compiled into a systematic, complete, and communicative synthesis.

## 3. Results and Discussion

### 3.1. Population Growth and Urbanization Process of Semarang City

By the early 19th century, European influence on commercial management and the introduction of technology had spread throughout the world. Under this circumstance, Java under the Dutch East Indies Colonial Government has built a strategic place in world commodity trade through ports on the coast of North Java. Batavia Colonial Capital was established in 1883 along its outermost port, namely Tanjung Priok, Semarang in the central part of the island (Java), and Surabaya in the east. These places were the main centers of international trade in the 19th century in Java [6].

'Modernization', is the Western understanding that refers to the definition of change towards a new concept called efficiency, human improvement, spatial interaction, and very complex relationships between humans [7]. This concept is also associated with cities that are beginning to take shape and the increase in urban urbanization. Modernization is a

phenomenon found in every era so it is a characteristic of urban growth [8]. Major developments in history have led to increased efficiency in the production of goods and services to improve spatial interaction and more effective mobilization of services associated with urban growth.

In the 19th century, the impact of the expansion of commercial trade again caused the population to move from the suburbs to the cities, where new jobs might become available. This creates a lot of problems regarding the inadequacy of housing and the lack of infrastructure facilities. However, the government did not care about these poor living conditions until the beginning of the 20th century. It is evident that there was some planning related to the City of Praja (Gemeente) towards housing established along the principles of the Europeans, under the 'Decentralization Act of 1903 [6].

According to Thomas Karsten, society is formed by different groups, each with conflicts between themselves, his analysis of this social tendency can be seen in the urban planning process that he carried out [6]. The Chinese live in compact row-shaped buildings called 'Chinatowns' located along the river. Chinese people with their businesses tend to approach the Netherlands. Arabs with their religious life and economic system as business people tend to live around mosques located in the city center. Javanese and other ethnic Indonesian groups live in 'kampung' which is a small village hidden behind trees along the coast for their daily lives. Generally, the condition of a village is far below health standards due to sanitation problems [9]. Therefore, the condition in Semarang is so obvious that there is a tendency to live in a different group based on different ethnic groups.

The VOC's monopoly system gave rise to the existence of the Dutch bourgeoisie. In the area around the port, various ethnic groups and nations live in separate areas and can prepare what they want as their way of life in their respective regions. This includes the daily economic system regarding housing and house patterns. The Dutch lived on the main road and then moved to the South (Candi area) which had a better climate and environment in the form of a country villa, spacious, fresh air, cool, and had a large garden. This style is mainly inspired by Javanese 'priyayi' (upper-class Javanese) houses combined with European style with large verandas [6].

The Netherlands continued to force through the Forced Planting System with its regulations, especially with a high tax system to maintain three important ports and improve their infrastructure facilities. As a result, the villagers needed more people to work on the plantations because the taxes they had to pay to rent the land were so high. As a result, this led to high population growth, as some villagers went to the port in search of new jobs. It is recorded that the population increased to reach 50-70% during the 19th century. This development brought urbanization to port cities to cope with the high population growth. The possible causal relationship between the culturstelsel (Forced Planting System) and the high rate of population growth has been a controversial topic [10]. In addition, the foreign population, especially the Dutch and Chinese, has also increased. By 1812, the foreign population reached more than 20,000. The population of the indigenous population has also increased to more than 97,000. The data was taken from Semarang population growth statistics [11]. The rapid growth of the city's population is mainly due to:

- Europeans inhabited the city center for large-scale housing and industry.
- Indonesians occupy suburban areas but periodically reconnect with the deterioration of soil quality, far from the city center.

When Thomas Stamford Raffles took over the Government as British Governor in Java in 1811 – 1816, the population of Java was estimated to reach 4.5 million. The fastest population growth occurred during the colonial period. In 1906, the population of Java reached up to 75% of the total population of Indonesia [7]. The rapid population growth rate and high population density have led to the decline of agricultural land in the village. This makes it difficult to migrate to the city for people hoping to get a job even though they cannot do city work. On the other hand, the industry in the cities in Java is not developed enough to accommodate the large number of unskilled workers who arrive in the city periodically every year. These immigrants then lived in slum areas and did not have a sanitation system in the city.

The Dutch dwelling in Semarang was socially class-separated from the indigenous population. The way the Dutch exploited the indigenous population was through the Javanese feudal class. This system often widens the distance between the ruling class and the indigenous population. The suburbs periodically become part of the locals' residences. In this case, residential areas in urban areas (villages) are growing rapidly, resulting in overcrowding and insufficient available infrastructure. The problem of water supply and sanitation leads to unhygienic living conditions. Within a few years, the villages were transformed into slums. Living conditions in village areas are an important source for improvement against the poor condition of villages in Semarang. This situation motivated Karsten to put this issue on the housing and planning policy [12].



**Figure 1.** The map of Semarang in 1719 shows the distribution of settlements in Semarang from different ethnic communities and the state of the urban village in 1932.

Source: COLLECTIE TROPENMUSEUM Ouderwetse kampongtoestand te Semarang, petahwoningen met slechte afvoergoot, TMnr 10010431, 1932

The Housing Regulations of 1901 and the Decentralization Regulations of 1903 offered a framework for local authorities to increase the frequency of housing, especially for local authority planning. In 1903, the administrative body was adapted to suit the situation, and several municipalities received their regional rulers and administrative and financial departments. The duties that lie with these local rulers include other things such as the construction and repair of roads, and inspections of buildings and housing [6].

### 3.2. Urban Planning and Architecture Thomas Karsten

Talking about the history of planning, and frameworks, Thomas Karsten's work in Semarang is a work that needs to be studied. His experience of rapid urban population growth in urban planning is an interesting subject to be analyzed for future planning decisions. This is mainly because Semarang was developed by the Dutch as a city that adopted the Western planning and colonial urban planning regulatory system. His thoughts on housing issues are an inseparable and very valuable resource. The quality of the house was adapted by Karsten in improving the political quality of the dwelling between the 1890s [12].

The movement to improve housing and urban planning at that time developed as an influence of international character. Karsten became active in the power of organizing Semarang from 1916-1919. This was his first experience as a city planner [13]. His attention to the living conditions of the workers and then his idea to improve the conditions of their living places can still be witnessed in many villages in Semarang, such as Kampung Mlaten in the western part of Semarang. He supported the existence of the concept of dividing housing divisions according to economic status, and ethnic origin, and emphasized that the living conditions of the village must be improved. He was an active member of various Javanese art schools and also actively fought for Indonesian independence [14].



**Figure 2.** Semarang Small Housing in Kampung Mlaten 1925

Source: KITLV Image; COLLECTIE TROPENMUSEUM. Waterputop het terrein van de bedelaarskolonie Boegangan van het Leger des Heils in Semarang, TMnr 60011632, 1930

Society is shaped by a diversity of different groups, each with its conflicts [15]. His work on the tendency of this community can be seen in his concept of urban planning. The concept concentrates on a particular whole, a continuity of organisms in the form of an organic whole. The four main ethnic groups that lived in Semarang during the colonial period were: the Dutch and other European nations, the Chinese, Arabs, and Javanese.

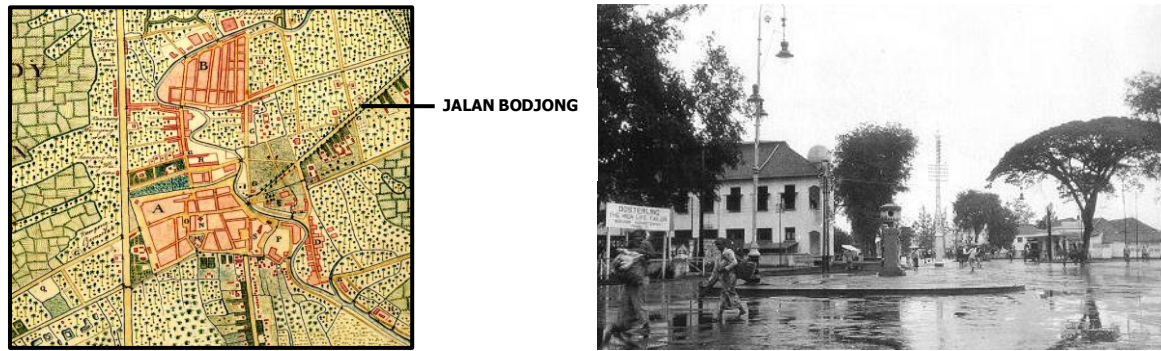
By accepting conventions, they stay in separate groups according to race. During Karsten's first practical experience in planning, he developed an alternative to accept the system that had previously been implemented in Semarang (1916-1919). He introduced the idea of dividing residential divisions represented by type in housing according to economic class: high, middle, and lower. He tries to bring different races, yet have the same income, to live together somewhere. He also pays special attention to Indonesia's tropical climate and provides features that contribute to the city's overall exposure, such as planting vegetation and trees, as well as planning low-density residential areas [15].

Thomas Karsten and others pay attention to the need to achieve the improvement of the quality of Javanese villages. This is an attempt to force local governments to create housing standards, development regulations, and laws to improve their living conditions. In 1935, Thomas Karsten expanded the area of authority of the town planning office to include regional planning and nature conservation around the village [14]. The concept of seeing a city is divided into three main steps that are intertwined with each other, such as details, exposure to the city, and planning as a totality. The main aspect of the change is in the position of the garden and the field around the building.

### 3.3. Development and Architecture of Thomas Karsten

The Dutch way of life in the early 1900s was an amazing achievement. They live by European standards of health, comfort, and care. With the improvement of communication, infrastructure, and other facilities, the population of Europeans increased and settled permanently because they felt comfortable living here. The invention of steamship technology has even increased the number of Europeans living in Indonesia because they feel that the distance to Europe is not as far as it used to be [16]. During the 20th century, Dutch colonialism in Semarang did not recreate the original landscape and its environment but modified this cultural landscape to the local conditions and climate, in accordance with the unique motives of the colonizers. This culture reflects the city of Indisch.

The increase in housing and urban planning in England and Germany came with a social concept in the form of the 'Plantation City Movement' introduced by Ebenezer Howard. This concept was also adapted by the Dutch and used by Thomas Karsten in his design for Semarang. We can see his work on the Old Town and Jalan Bodjong, which was the main North-South Road in Semarang at that time. The space between the fence along this road and the outside of the building is intended as a garden. Karsten also suggested planting tamarind trees to provide shade for pedestrians.



**Figure 3.** Jalan Bodjong in 1791

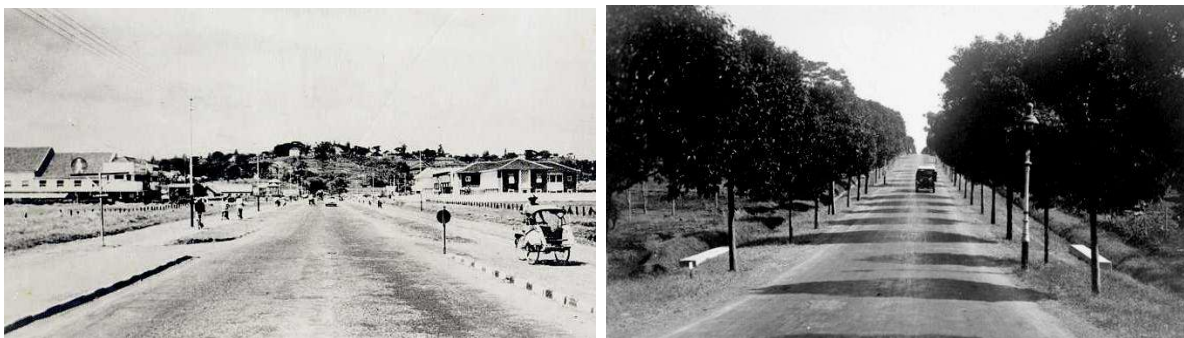
Source: Semarang Maps 1816 PU Cipta Kary 1993/1994, COLLECTIE TROPENMUSEUM Bodjongschen weg te Semarang, TMnr 10014750, 1900 – 1924



**Figure 4.** Thomas Karsten's Urban Planning by Exploring the Environment

Source: Bodjongsche weg. Semarang 1895 (KITLV Image Code 1405041).

Karsten also described a plan for housing arrangements in the Candi Baru area [14], which has the characteristics of having low density, beautiful green trees along with roads that provide access to housing.



**Figure 5.** Oei Tiong Ham weg now Jalan Pahlawan in 1972

Source: COLLECTIE TROPENMUSEUM, TMnr 10006281, 1972

He designed several houses in the region between 1930-1940, each of which went on to explore the relationship between buildings and the surrounding environment. The spatial arrangement of the house is associated with shadows, airflow, and truly breathtaking views.



**Figure 6.** Villa Het Bergnest van de familie Hirsch, vermoedelijk te Semarang 1948 (Now Kesambi Hotel) and Tanah Putih Ramp in 1950  
Source: KITLV Image

The Candi Baru area planned by Thomas Karsten is the Raadsplein Area now called Diponegoro Park or Elisabeth Hospital Roundabout. The park is oval in shape extending east-west. The park was originally in the French European style (16th-century Renaissance) by placing the official house on the east center side [17]. In this area, Thomas Karsten also planned Elisabeth Hospital by combining the concept of a park and a ward connected by a corridor.



**Figure 7.** Candi Baru Area in 1906 and 1921

Source: COLLECTIE TROPENMUSEUM Autoweg en villa's op Tjandi Semarang, TMnr 10014757, 1906-1921

#### 4. Conclusion

The impression of a city about the cultural context can be seen at first glance by allowing environmental development for change in the guiding phase that maintains the character of the architectural vision in terms of cultural sustainability. Therefore, Semarang, which historically developed as a colonial city, experienced the impact of colonization on the urban area through the creation of a contact situation between two main cultural groups, namely the Dutch and Javanese, which created a special type of city consisting of a combination of two influences, namely the colonizer and its colony.

From the analysis of Thomas Karsten's architectural work, one of the key elements is his ability to solve problems using local resources and local conditions. Thomas Karsten's design is an authentic response to 20th-century dwelling and brings back a quality design that is



unique in its appreciation of the environmental context, and its response to social and cultural settings. The design in the three examples above is mainly considered with Western customs that seek to adapt to the conditions of the local area. One of the significant design criteria is to provide airflow into the building as well as protection against the interior of the space from the heat of the sun and rain. For the first time about climate, Karsten solved this problem with balconies, verandas, terraces, large walls as openings, and high ceilings. This idea is mainly a continuation of the design parameters of colonial buildings in the Old City. The second aspect of the spatial arrangement requires the orientation of the public space to the scenery and morning rays. In this case, Karsten's design offers one side a continuation of colonial architecture and the other, modern architecture that blends the naturalness of European and local cultures.

## References

- [1] F. Choay, *The Modern City; Planning in the 19th Century*. London: Studio Vista, 1980.
- [2] A. F. Sabaruddin, "Hakekat Hunian Vertikal di Perkotaan," in *Seminar Kota Layak Huni/Livable Space*, Jakarta: Jurusan Arsitektur Fakultas Teknik Sipil dan Perencanaan Universitas Trisakti, 2018. [Online]. Available: <https://www.trijurnal.lemlit.trisakti.ac.id/Is%0Aivas/article/view/2738>
- [3] A. Y. Permana, S. Soetomo, G. Herdiman, and I. Buchori, "Transformasi Gubahan Ruang: Pondokan Mahasiswa di Kawasan Balubur Tamansari Kota Bandung," Diponegoro University, 2014.
- [4] I. Cerdà, "Teoría General de La Urbanización," Barcelona: Imprenta Espanola, 1867.
- [5] A. S. Nugroho, A. Suryono, and A. Setiawan, "Analisa Alun-Alun Kota Purworejo," Semarang, 2010.
- [6] N. Peter J., *The Indonesian City: Studies in Urban Development and Planning*. Holland: Foris Publications, 1986.
- [7] A. Taylor, *South East Asia*. Abbot: Newton: David & Charles, 1972.
- [8] I. Santoso, "Penelusuran Historis Melalui Visual Bangunan Art Deco Sebuah Upaya Buffer Kualitas Wajah Kota ke Era Komersialisasi di Malang," *Mintakat J. Arsit.*, vol. 18, no. 1, 2017.
- [9] Noviani, N. Komang, and I. G. P. Y. P. Putra, "Identifikasi Lingkungan Permukiman Kumuh Kampung Kajanan," *Media Komun. FPIPS*, vol. 16, no. 1, pp. 16-20., 2017.
- [10] M. C. Ricklefs, *A History of Modern Indonesia Since 1300*. London: The Macmillan Press Ltd, 1991.
- [11] A. Wright, *Twentieth Century Impression of Netherlands India; Its History, Commerce, Industries and Resources*. London: Arnold Lloyds Greater Britain Publishing Co. Ltd, 1909.
- [12] H. F. Tillema, *Van Wonen En Bewonen, Van Bouwen, Huis En Erf, Tjandi*. Semarang, 1913.
- [13] P. A. Wijayati, "Eksistensi Pasar-Pasar Tradisional di Kota Semarang Tahun 1873 – 1914," *Forum Ilmu Sos.*, vol. 36, no. 2, pp. 167–183, 2009, [Online]. Available: <https://journal.unnes.ac.id/nju/FIS/article/view/1506/1651>

- [14] Nieuwenhuizen, B. C., D. R. S., B. E. A. W., C. I. L., and & M. M., "TBS-Behandeling Geprofileerd," 2011. [Online]. Available: <https://repository.wodc.nl/handle/20.500.12832/1837>
- [15] M. Jose, M. Nichols, and J. Stevens, "Contributions of Diversification, Promotion, and R&D to the Value of Multiproduct Firms: A Tobin's Q Approach," *Financ. Manag.*, vol. 15, pp. 33–8, 1986.
- [16] A. Kusnandar, "Revolusi Industri 1.0 Hingga 4.0.," *Forkoms FEB UGM*, vol. 305, no. 1, 2019.
- [17] A. S. Muljadinata, "Karsten dan Penataan Kota Semarang," Institut Teknologi Bandung, 1993.