

INTERROGATING SOCIO-SPATIAL SUSTAINABILITY IN DENSE CITY: CASE STUDIES IN KALIANYAR AND JEMBATAN BESI

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Abstract

Living in *Kampung* (village) in Jakarta has created a unique social interaction that strengthens community bonds, tradition, and identity. However, it is also challenging the way of life to fit in the limited space by obscuring the private and public property and activity. Distressing to live in an apartment and outer city, people tend to live in landed houses in the urban village, both in Kalianyar and Jembatan Besi, Tambora, Jakarta. Hence, this paper aims to study the socio-spatial sustainability of the dense *kampung* in Jakarta, especially in Kalianyar and Jembatan Besi to find a basic pattern of the habitable and sustainable environment. This research gathers information on field observation, cultural mapping, documentation, and interview; then classified them into the social and spatial pattern. These facts and patterns are illustrated using images and maps as substances to analyze the correlation, networking, and cycle. Also, sustainable built environment involves the diverse community and cultural diversity. People act as cultural drivers that trigger, shape, and maintain built environment. Findings on the correlations and patterns of social and spatial life will guide designers to create a sustainable environment by preserving social power and identity to define their spatial and social needs.

Keywords: socio-spatial sustainability, Jakarta *Kampung*, sustainable environment, urban village, dense housing.

Abstrak

Judul: *Interogasi Keberlanjutan Sosial Keruangan pada Kota Padat: Studi Kasus di Kalianyar dan Jembatan Besi*

Kehidupan Kampung di dalam Jakarta telah menciptakan keunikan interaksi sosial yang memperkuat ikatan masyarakat, tradisi, dan identitas. Tetapi, kehidupan Kampung di Jakarta juga turut menantang cara hidup untuk sesuai dalam ruang terbatas dengan menyorukan properti dan aktivitas privat dan publik. Kesulitan hidup di apartemen dan luar kota, masyarakat cenderung tinggal pada rumah di atas tanah di Kampung Kota, khususnya di kawasan Kalianyar dan Jembatan Besi, Tambora, Jakarta. Oleh karena itu, penelitian ini bertujuan untuk mempelajari keberlanjutan sosial keruangan pada Kampung berpenduduk padat di Kalianyar dan Jembatan Besi guna mendapatkan pola dasar layak huni dan lingkungan berkelanjutan. Penelitian ini mengumpulkan informasi melalui observasi lapangan, pemetaan budaya, dokumentasi, dan interview; lalu diklasifikasikan ke dalam pola sosial dan keruangan. Fakta – fakta dan pola – pola diilustrasikan melalui gambar dan peta sebagai dasar analisis hubungan, jejaring, dan siklus. Dan, lingkungan bangun berkelanjutan melibatkan komunitas dan budaya beraneka ragam. Masyarakat bertindak sebagai penggerak budaya yang memicu, membentuk, dan memelihara lingkungan bangun. Temuan hubungan dan pola kehidupan sosial dan keruangan akan menjadi panduan bagi perancang untuk merancang lingkungan berkelanjutan dengan mempertahankan kekuatan dan identitas sosial dalam mendefinisikan kebutuhan sosial dan keruangan masyarakat.

Kata kunci: keberlanjutan sosial keruangan, Kampung Jakarta, lingkungan berkelanjutan, kampung kota, perumahan padat.

Introduction

Urban *Kampung*, or urban village, in Tambora District, West Jakarta has the infeasible environment and poor-quality life. Tambora District is the densest district in South East Asia with 43.243,43/km² that includes the strategic area for trades, small industries, and services (<http://jakartapedia.bpadjakarta.net/>, 2017). Urban *kampung* both in Kalianyar and Jembatan Besi, part of Tambora District, are dominated by dense housing, slum environment, and varied social and economic condition. Based on the Oxford Dictionary, the term *kampung* refers to a village in a Malay-speaking country (<https://en.oxforddictionaries.com>, 2018). Also, based on the Indonesia Language Dictionary, a *kampung* is the group of housing, which is inhabited by low-income society (<https://kbbi.web.id>, 2018). Furthermore, *kampung* either slum or peasant mystification often seems doubled as both social and spatial formation that prompts the present inquiry into *kampung* as an economic modality and closely-knit communities (Newberry, 2008).

From now on, the exertion of urban *kampung* in this paper appears to imply an urban village that defines the dense area and community in Jakarta City. Urban *kampung* in Jakarta is part of the informal and unplanned area that is densely crowded and uncomfortable (Ellisa, 2016). In 2017, Jembatan Besi has an area of 0,5531 km² with a population density of 64.583 people/km² (Kalianyar, 2017); and Kalinyar has an area of 0,32 km² area with a population density of 89.824 people/km² (Besi, 2017). In this case, Kalianyar is the densest *kampung* with irregular and baffles pattern of the built environment. On the other side, Jembatan Besi adjoins with Kalianyar has more roomy space and rectangular pattern. So, this research focuses on urban *kampung* in both sub-district and uses 40–45% sample area from each *kampung*.

The social and economic gap is noticeable between housing along the street and alley where most of the low-income families live along the narrow alley in Kalianyar and Jembatan Besi. Both sub-districts have exogen and endogen challenges that might determine a sustainable city (J. Pearson, Newton, & Roberts, 2014). Exogen challenges gradually affect society in Tambora, like limited land, dense and disorder built environment, flooding, fire, urbanization, and polluted environment. Besides, endogen challenges shape the Tambora environment, like the social gap, poor-environmental quality, no public space, traffic jam, thuggery, and small home industry.

However, society who live in Kalianyar and Jembatan Besi has refused to move subsidized apartment since 2015 because their source of livelihood, education, and daily needs are in comfortable range distance. A low-income society who live in *Kampung* Jakarta needs justice to live in a proper built environment that supports their livelihood and strong community bond. Kalianyar and Jembatan Besi have irregular street and housing pattern, and each people compete for their space and activity. Besides, the high-density city needs society who has a strong sense of belonging as perception and identity for the public area (Lawson, 2010). So, a good city accommodates and supports social activity, especially along the street (Mehta, 2013).



Figure 1 Research area in Kalianyar and Jembatan Besi

Source: *Rencana Tata Ruang Wilayah* (Urban Land Use Plan) DKI Jakarta, 2014

Struggling with the social and economic condition in Kalianyar and Jembatan Besi, residents continuously increase by birth and migrants keep on coming. However, there is not enough horizontal space for every single family. As they insist on staying on a single or two-story house, they must survive in this narrow space for living by improvising house and intervening alley. Their tight-knit community bond helps them to guard their environment and to create home. Ergo, this research wants to find out social and spatial sustainability in the dense *kampung* in Kalianyar and Jembatan Besi, Jakarta.

Towards Sustainable Dense City

The main issue of the dense city in both case studies is the infeasible and unsustainable environment; despite that, those areas have a strategic location to support livelihood. Meanwhile, the development of a sustainable city embodies three aspects, like the economy, social, and environment (Heng & Malone-Lee, 2010). On the other side, people remain to adapt and survive in a slum and dense area in the city. The high dense population may cause negative implication for society and quality of life (Heng & Malone-Lee, 2010). However, the highly dense population in the city has indicated that the city gives more chance and economic competition in the economy (Hart, 2016). The city represents supply and demand as same as life cycle, people behavior, and city system that shape consumerism pattern (Crocker & Lehmann, 2013). We define the sustainable city

from 3 elements, like (1) land use zone distribution, (2) urban transportation system, and (3) area density level (Crocker & Lehmann, 2013). Notwithstanding, a dense city or urban *kampung* usually have more communal space and social interaction rather than the planned city. The transition from house to public space defines the success of the city, so the formation of public space has encouraged society behavior to create the ideal environment and city (Mehta, 2013).

The feasible city may not be sustainable, but the sustainable city has a longer life because it is tough facing city amendment and challenge. High dense population city has some key elements (Heng & Malone-Lee, 2010), such as:

- a. Diversity and flexibility
Dense city needs some conditions to support the city development, like (1) a district needs more than one function in different time, (2) a district needs sub-districts with easy and fast access and movement, (3) the development of buildings in the city opens various possibility for corporation and building type, and (4) high dense population concentration should support broad range social economy activity.
- b. Complexity and size
Complexity and size in a big city have become a phenomenon and critical issue because considerable monolithic heterogeneity reduces activities and users.
- c. Density, form, and employment availability
Urban form determines public employment because each layer zone buildings and area help people to choose and get served their needs.

Methodology

This research used the qualitative method to gather information, analysis, and synthesis. First, the researcher and students were gathering data from field observation and documentation. Second, we started mapping the street/alley and building pattern in Kalianyar and Jembatan Besi. Then, when local society has already known research team, we started to interview. Plus, this research used cultural mapping to understand the correlation between the built environment and social-spatial activity.

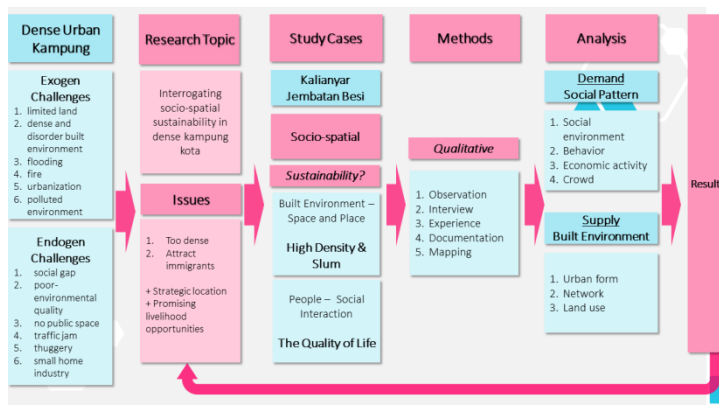


Figure 2 Research thinking diagram

Source: Author, 2018

To analyze data, researcher categorized and summarized primer and seconder data. The researcher made a spatial pattern using map, environment section, and environment elevation that represent physical and activity pattern. Afterward, the researcher analyzed the social-spatial classification, such as social pattern – demand and built environment pattern – supply (Crocker & Lehmann, 2013). Social pattern encompasses social environment, behavior, daily activity, and center of public activity using diagrams or pictures. The recurring elements that contribute to the broader and general sense of spatial identity, or character, with which we recognize and distinguish places – region, settlement, townscape, landscape character – are usually defined in terms of type and most common occurrence: shape, color, frequency, material, etc. combinations thereof (Juvancic & Verovsek, 2017). Also, the built environment pattern covers urban form, networks, and land zone. In the end, this research tried to find the basic pattern of social and spatial needs that form a sustainable built environment.

Social and Spatial Condition of Dense *Kampung* in Kalianyar and Jembatan Besi

Jakarta Urban Planning is not in line with the existing condition in Kalianyar and Jembatan Besi because people are gradually transforming and adjusting their space to cope with the increasing number of population and density, both building, and people.



Figure 3 The distribution of existing building use in Jembatan Besi

Source: Author, 2018



Figure 4 The distribution of existing building use in Kalianyar
Source: Author, 2018

Based on Jakarta Urban Planning 2030, 85% of the research area in Jembatan Besi is intended for small and big housing; and 99% of the research area in Kalianyar is intended for small, big and middle housing (see Figure 1). Both areas have transformed into urban *kampung* where people set their properties and boundary disregarding city planning. Still, these areas have attractiveness and strength for informal worker where it is well-known as a home industry for textile production. Each building has turned to mixed-use building, like housing, small industry, and small retail.

Kalianyar and Jembatan Besi are dense with buildings parallel with population density. It explains one of the sustainable high population elements, diversity, and flexibility; even it infringed city regulation. Each house has more than one function in distinct time and enables to support social and economic activities for society who live there. Meanwhile, researcher has found five fundamental social and spatial phenomena in both area, such as (1) adjusting spatial needs on buildings, (2) defining spatial order to trigger social and economic activities, (3) creating social identity and community bond through built environment, (4) utilizing convenience accessibility in urban *kampung*, and (5) accommodating private and public activities along the alley.

1. Adjusting Spatial Needs on Buildings

Society has built their houses in Jembatan Besi and Kalianyar by adapting and adjusting to accommodate more people and activities. Ellisa explained that most of the typical houses in the *kampung* sufficiently provided the basic internal functionality of the house with some mechanisms to cope with crowding (Ellisa, 2016). We find the mark and differences of spatial separation in housing density and construction, and the size of the alleyways that thread through these neighborhoods (Newberry, 2008).

The semi-permanent and permanent-semi permanent building tends to stand on the alley and smaller houses when people apply those inexpensive materials and simple construction to improvise rooms and building. Urban *kampung* people use various building construction, like permanent building (PB), permanent-semi permanent building (PSPB), and semi-permanent building (SPB). People use woods and recycled materials for their construction building (SPB). Building material reflects social and economic condition, where Jembatan Besi has 85% PB and 15% PSPB; and Kalianyar has 15% PSPB and 10% semi-permanent building.

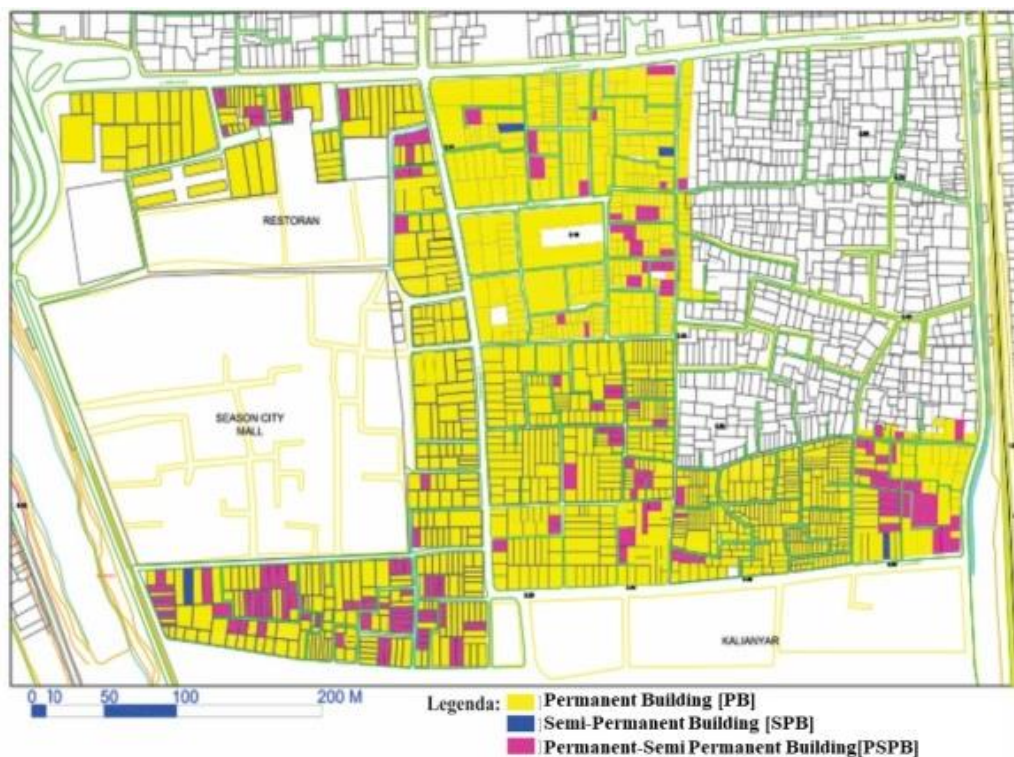


Figure 5 Building constructions (permanent or semi-permanent) in Jembatan Besi

Source: Author, 2018

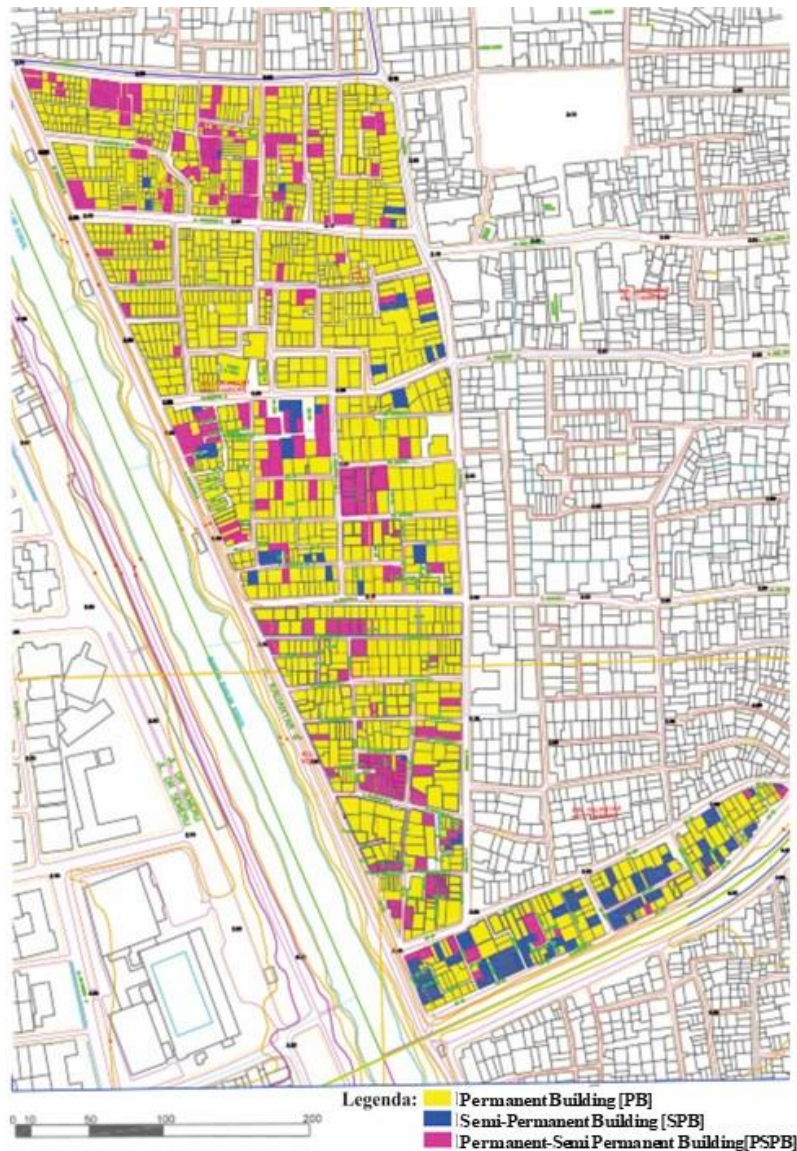


Figure 6 Building constructions (permanent or semi-permanent) in Kalianyar
Source: Author, 2018

2. Defining Spatial Order to Trigger Social and Economic Activities

The vigorous textile home industry has triggered a spatial order to define social and economic activities. Mixed-used buildings and activities in urban *kampung* have produced economic resilience, when every single family may have additional income by selling everyday products and services. Both places have given more occasions for society to adapt and survive by reducing house area, adding more houses on other houses, extending house on the street, creating home textile industry, and opening various small stores for daily needs. Another research supported this fact, where the primary motivation of the spatial arrangements for most of the residents who live at houses hosting economic activities focused on the need to accommodate the space for the business rather than the need to create a comfortable living space (Ellisa, 2016).

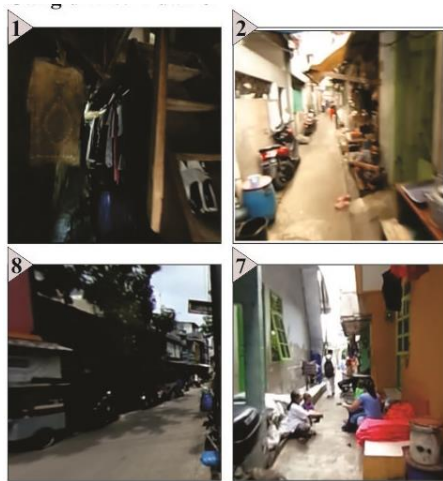


Figure 7 Alley has blurred the boundary between private and public in Kali Anyar

Source: Author, 2018

Urban *kampung* people have been adjusting their space for living by dividing their house horizontally and vertically. Researcher confines vertical houses from two to four-story building posit on facts on site. Additionally, most of the houses in *kampung* both Kalianyar and Jembatan Besi does not have a toilet; hence every small community built a public toilet. Space for public and private blend along the street or alley. Society is cooking, washing, resting, playing, and socializing along the alley/street. They utilized the first floor for a small store and a small home industry.

Society in Kalianyar and Jembatan Besi have known to be part of the textile production. Beyond these exchange relationships, a *kampung* is also the sites of significant amounts of production through small industries (Newberry, 2008). Practically, almost every small houses have their roles to produce textile. They quickly get the textile job in this area, so they bring more relatives and friends from hometown to work here even though without experience and skills. Thus, the image of the textile production area has become a robust magnet for immigrants.

3. Creating Social Identity and Community Bond through Built Environment

People who live *kampung* in Kalianyar and Jembatan Besi has stronger community bond and identity, even though they came from a different region in Indonesia; where most people come from Java. The identity *kampung* people have opposed characteristics denoting individuality and commonality (Juvancic & Verovsek, 2017). They know everyone who lives in a 200meter radius. They spend the time to gather in front of their house, intersection street/alley, small store, terrace and balcony on the second floor. They do not have spacious open public space, but they live in a narrow alley that encourages closer proximity. Not only mixing properties between public and private, but their activities blend in a good way for all ages. Likewise, they have a strong sense of belonging and caring for properties and the community. For example, they put CCTV on the alley to

guard the alley where they live because they usually put their motorcycle in front of their house.

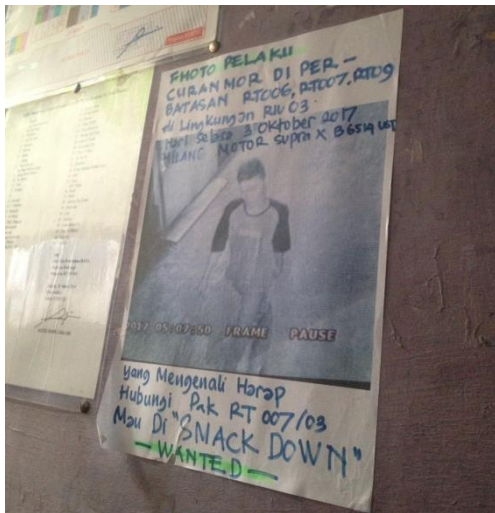


Figure 8 Strong sense of belonging between community who live in Tambora, Jakarta

Source: Author, 2018



Figure 9 Textile home industry society is the identity area in Tambora, Jakarta

Source: Author, 2017

The identity of the society is textile workers who produce and distribute in the small textile industry. Even they do not work in the textile industry, and they get the opportunity to increase their livelihood here. A wife may get multiple options to help supporting family income, like working as a textile worker, laundry worker cleaning service, and selling daily needs in front of their house, because the location is near to business and commerce area. Meanwhile, the head of the family mostly works as a driver, textile worker, small merchants, and construction worker. They know the felicitous textile home industry cycle from production and distribution; then they protect and engage textile social identity and community bond on each building and alley in the urban *kampung*.

4. Utilizing convenience accessibility in the urban *kampung*

Kalianyar and Jembatan Besi have closed radius between 200-500meter to reach their daily needs, including daily shopping, monthly shopping, studying, praying, working, and socializing; yet, they prefer to use motorcycle rather than on foot. Various activities and building functions in dense Kampung ease daily activity in Kalianyar and Jembatan Besi. People can reach their daily needs for working, studying, praying, and recreation on foot. So, they prefer to stay in a slum and dense Kampung rather than living in the outer city or subsidized apartment; when they must pay more for transportation and spend more time on the road. When they need money, they can offer their service, sell something, or dabble in the textile industry. Supply and demand in these areas are in full social and economic cycle.



Figure 10 Strategic place and convenience accessibility in Jakarta
Source: Author, 2018

5. Accommodating private and public activities along the alley

In Kalianyar and Jembatan Besi, landed and smaller houses give more chances for families or group of people to stay at least in 8 – 9 m² room to stay in these dense areas; where each room has a multi or altered function based on activity, time and people. It is their house to accommodate their daily needs; hence they have extended their activities and properties to the alley or street. The spatial appropriation for the placement of belongings was not always a conscious action; but it was often based on what was convenient and close at hand (Ellisa, 2016).

They stacked additional building on the second or third floor using the semi-permanent construction for diverse users; indeed they stacked additional building crossing on the top of the alley and added stair on the alley.

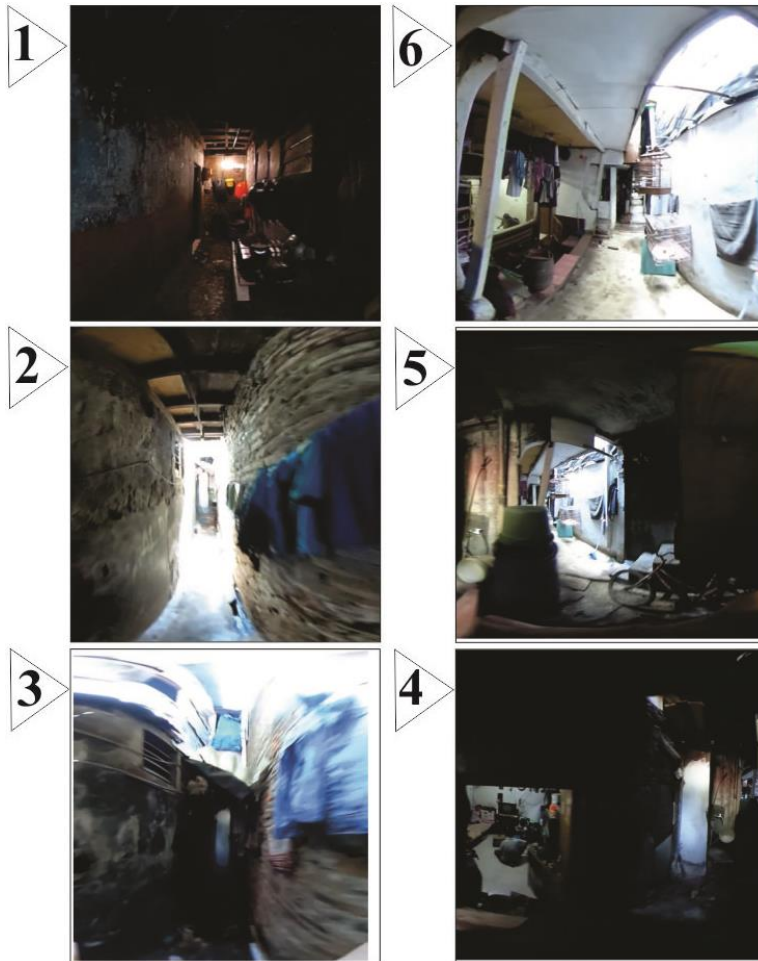


Figure 11 Alley contains many activities and properties in Jembatan Besi
 Source: Author, 2018

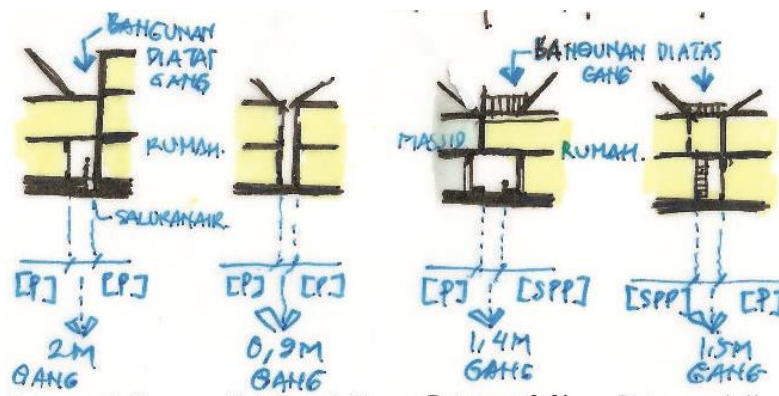


Figure 12 Alley section type in Jembatan Besi
 Source: Author, 2018

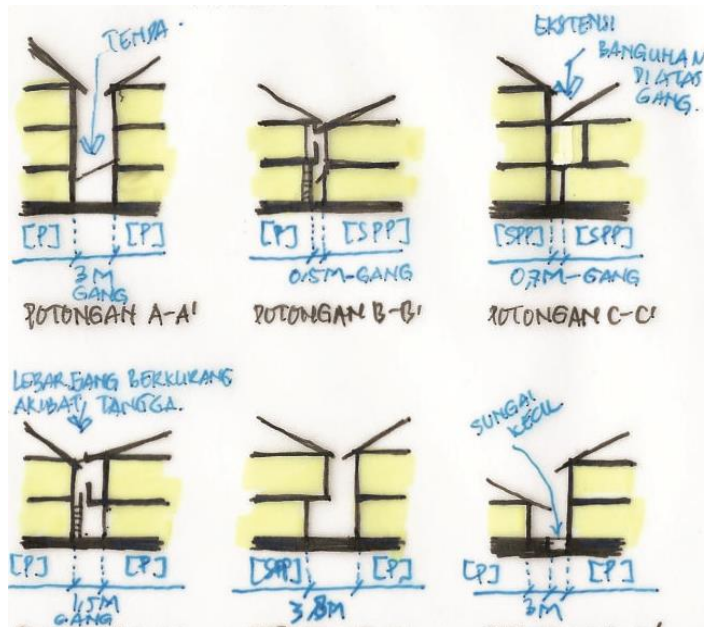


Figure 13 Alley section type in Kali Anyar

Source: Author, 2018

Although houses in urban *kampung* always exceed boundary to the street/alley, they do not consider a healthy environment by blocking natural lighting and cross ventilation through the alley and their houses because their priority is space for living. Most of the urban *kampung* have at least one alley that is wide enough to accommodate automobiles; *kampung* is better understood as traversed through a series of paths that range from shoulder-width allowing for foot traffic up to bicycle and motorcycle width (Newberry, 2008). Based on this research, there are some characters for alley and streets, such as:

- a. Narrow alley width is 0,5–1meter;
- b. Common alley width is 1–2meter;
- c. Narrow street width is 2–3meter;
- d. Common street width is >3meter.

Result and Discussion

Urban *kampung* in Tambora, Jakarta has a unique social and spatial form, and it has social and economic endurance and sustainability. The economic world of a *kampung* is a dense and interconnected one (Newberry, 2008); thereof, the built environment in a *kampung* is not merely a crucial factor to survive, but the most important is economic resilience. Community in a *kampung* has doubled space to dwell and labor in urban spaces (Newberry, 2008).

Jakarta

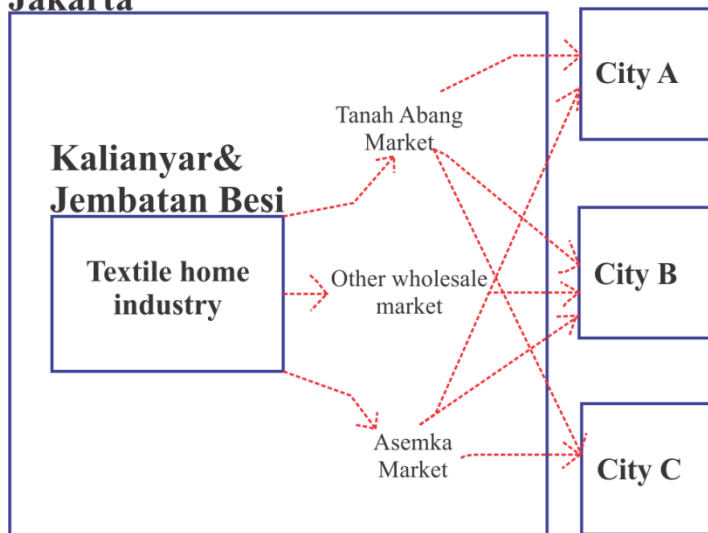


Figure 14 Kaliyanyar and Jembatan Besi textile industry correlation with another city and wholesale market in Jakarta

Source: Author, 2018

The textile home industry has become the pioneer and the image of Kaliyanyar and Jembatan Besi. It continually triggers economic and social growth; consequently, it becomes the densest area that attracts people to work, stay, and move there. The derivation of Kaliyanyar and Jembatan Besi was the textile industry. Kaliyanyar and Jembatan Besi have stood up on economic resilience, where *kampung* people have a significant role to produce and distribute textile to the wholesale market in Jakarta and other cities (see Figure 12). So, this area has compiled economic criteria for a sustainable city when it provides the livelihood in the urban *kampung*.

The textile home industry is the starting point of growth of unplanning *kampung* in Jembatan Besi and Kaliyanyar. When *kampung* turned to urban *kampung*, it has already had irregular form and distribution (see Figure 2 and 3) both the building blocks and the street/alley. If the cultural drivers and growth in these areas is the textile home industry, then other buildings, activities, and public facilities exist as after the needs of labor. As a result, there are some stages of spatial development in Tambora, like:

1. Textile proprietors commenced industry, and then they built house and factory;
2. Textile employees/labors came, worked and dwelled, then they built house and textile home industry;
3. Other people/employees' extended family & friends dwelled and opened a small retail/store;
4. *Kampung* started to build public facilities and its networks (train and road/street/alley) and so on.

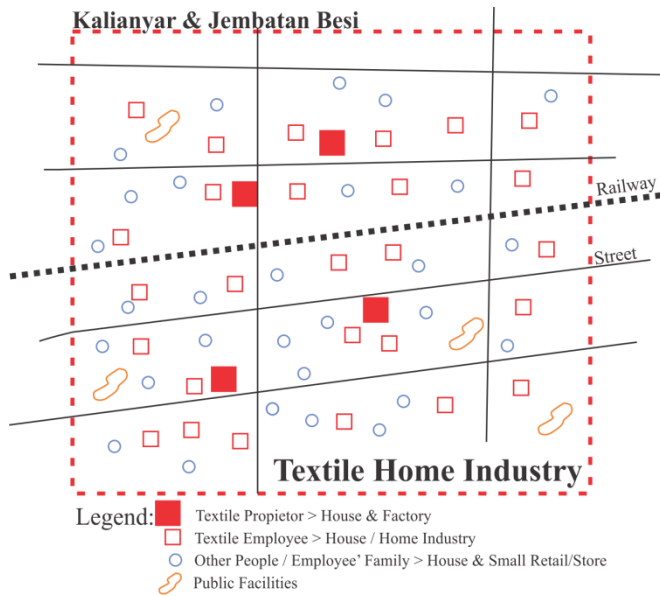


Figure 15 The early social and spatial distribution diagram in Kalianyar and Jembatan Besi

Source: Author, 2018

The peculiarity of the built environment in Kalianyar and Jembatan Besi might not be sustainable in the future because it cannot accommodate more people. The next development should be focusing on adding vertical layers, where multiple story buildings might be the solution. Even, most people have been thriving to adapt to limited space.

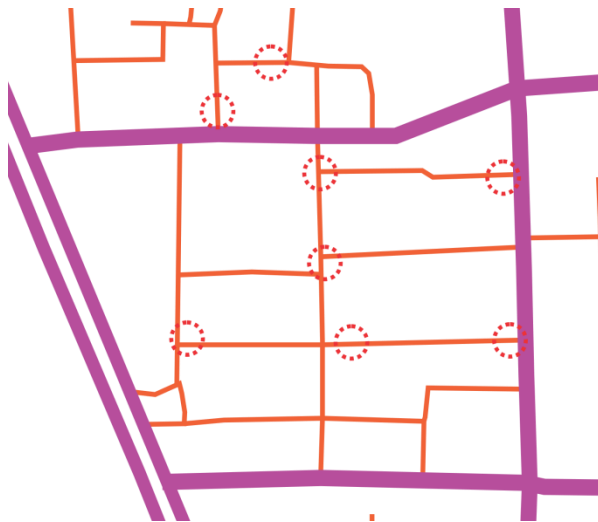


Figure 16 Typical communal places in Kalianyar and Jembatan Besi

Source: Author, 2018

Social factor for a sustainable city in urban *kampung* is successful; community in *kampung* has a strong bond and identity when they know well their neighbor and often to gather in some spots on the alley. The spots where people converge, such as the alley/street intersection, shaded area, sitting place, house terrace, and a

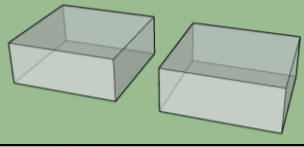
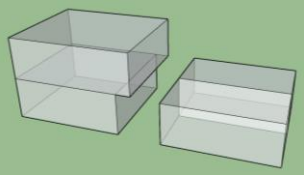
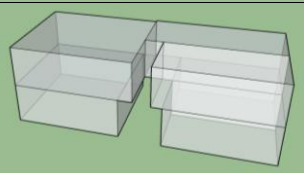
small store (see Figure 16 and 17). They tend to share their private and public zone doing some activities together.



Figure 17 Street elevation in sub-district 7, Jembatan Besi
Source: Author, 2018

Community in urban *kampung* has been anticipating and improvisation for their sustainable life in Kalianyar and Jembatan Besi. They exert to modify each building block to accommodate more people. Researcher have known these areas for years, then there are some ways that people do to modify their house (see Table 1), such as (1) the original house was one-story house, (2) people added more story into one/two-story house, (3) people divided their house into smaller houses, and (4) people extended the upper floor house to the street/alley. Hence, they do not need vast space to live because they only need the place to sleep and rest where service activity takes place on the alley/street.

Table 1 The way *kampung* people to modify their house to accommodate more people

| No | Building Mass |
|----|---|
| 1 |  |
| 2 |  |
| 3 |  |

Source: The result of the analysis, 2018

Conclusion

The dense housing in Kalianyar and Jembatan Besi has proven that society tends to live in the landed houses and profitable place which supports their livelihood and convenient accessibility while they are living in a cramped space. The actors are a low-income family who is fragile to economic alteration by moving them to other places. Kalianyar and Jembatan Besi have resilience economic when every

space and activity sustain their life, even though they do not live in a healthy and proper built environment. These sub-districts in Kalianyar and Jembatan Besi have only met two (economy and social) of three aspects of the sustainable city as Heng explained in Density and Urban Sustainability.

This research also proves that high dense population gives more chance and economy competition (Hart, 2016) because these sub-districts have an endless economic cycle from home textile industry. Besides, they represent the cycle of supply and demand (Crocker & Lehmann, 2013); textile industry needs workers and society to meet their source of income. The textile industry shapes the production and consumerism pattern; thereof we can see it in its built environment and society. The housing may alter the following time, activity, occupant, and properties, moreover, both sub-districts have flexibility and diversity for access and function. The weakness of Kampung in Kalianyar and Jembatan Besi is too dense and infeasible for the quality of life.

Eventually, we can (re)create social and spatial sustainability in the dense city by providing the economic driving wheel. In these cases, Kalianyar and Jembatan Besi have provided home textile industry as a driver to withstand in dense sub-district. When society has a livelihood and easy access, they establish a community bond to adapt and to care for each other. However, they survive on landed houses since most of them work in the informal sector. Their income mostly comes on the first floor where they get income and socialize. Dense urban *kampung* creates more opportunity to sell products and services when they do not get it from vertical houses or apartment. The last job for designers and government provides sustainable built environment which is ready for population growth and any transformations.

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