Typology of workplaces in the informal settlement Semarang

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Abstract. Informal settlements are considered as a problem in urban area, and viewed as inappropriate and unsupportive compared to city settlements. However, these kampongs play a role in social networks and significant economic activities in cities, and accommodates the needs of inhabitants. Jurnatan Kampong is an old kampong in the Semarang City, located at the edge of Semarang River, with a residential situation adjusted to the need to the workplace. This settlement functions as a dwelling area and a hub of trade and service, and the river border area is utilized for work functions. Therefore, this study aims to recognize the use pattern of economic space in the Jurnatan Kampong along Semarang River. The method used is direct observation of the border area between Semarang River and Jurnatan Kampong. The result showed residential areas on the kampong along this Inspections Street was used for various economic activities, in the form of stalls, shops, wood processing and warehouses.

1. Introduction

The term kampong is widely known as informal settlement and described as a group of houses with poor condition, limited public facilities, primarily inhabited by low-income communities, and located in urban areas [1]. In kampongs, public spaces are ambiguous due to the vague use of spatial plans and structural functions by the overlap of roads and human activities [2].

The kampong activities show a real picture of city life; therefore, kampong becomes a living space enabling low-income earner to escape poverty [3]. As a result of strategic positioning or closeness to the city center, kampong areas are usually used as alternative permanent residences [4]. In addition, migrants from rural areas commonly settle in and make the kampong a stepping-stone in a bid to try an urban environment, with the majority of the poor living in the kampong [5].

The long-established urban kampong has become part of spontaneous urban settlements formed through spatial concepts over several periods. The existence of an enduring and yet surviving kampong shows the interaction between the inhabitants, space, and activities in the community are inseparable [6]. The subsistence of an urban kampong as an independently developed residential area is built by the inhabitants' ability to maintain the values of life. The existence is due to the interaction between the space and activities in the urban kampong in the midst of modern urban life [7].

Jurnatan Kampong is one of the kampongs which is located on the edge of Semarang River, in Purwodinatan, Central Semarang District, with an area of 5.5 hectares and a population density of 209 people/ha. Furthermore, based on Semarang City Spatial Detail Planning (RDTR) Year 2011-2031, the settlement is located at the urban area (BWK) 1, functioning as a residential, commercial and service area. The kampong has low quality, with heaps of garbage and high levels of sedimentation, but has been able to adapt to damage levels to the houses and the environment [8,9].
Informal settlements currently occur in many developing countries [10], and is driven by rapid urbanization in recent decades [10]. Furthermore, a majority of migrants from kampongs to cities choose to settle in informal settlements due to lack of affordable housing options. The informal settlements have characterized by dense population and underdeveloped physical infrastructure. The definition of informal settlements is applied to avoid negative connotations for slum communities (slums and squatters), or poor and illegal neighborhoods. In addition, several slum types appear in cities of developing and developed countries, including kampongs in Jakarta, favelas in Rio de Janeiro, Barriadas in Lima, Ghettos in Detroit, Bustees in Kolkata, Khlong housing in Bangkok, Colony city in Mexico, Bidonvilles in Algeria, and lodges in Johannesburg, South Africa. The physical form of these settlements differs visually and contextually from the local culture. This affirms Davis [11] assertion of the inseparability of urban design, physical appearance and architecture from economic interest reflections, institutional interactions shapes, and cultural norms frame [11]. Types of additional space for work can be seen on figure 1.

![Figure 1. Types of additional space for work [12].](image)

This study aims to examine the typology of spatial use in Jurnatan Kampong along Semarang River by observing the phenomenon of informality in the patterns and principles for workplaces in this kampong. The research uses a theoretical approach regarding the fundamental elements in informal settlements [12], where Rybczynski et al., named "Workplace". Informal settlements are used both in dwelling place and workspace. Furthermore, this provides frequent important and complex participation in the city's economic activities [12]. Commercial enterprises occurring in settlements are regarded as home industry, with some providing finished products and entrepreneurs employ the workers from the settlements. Rybczynski et al. research found informal Indian residential areas utilizing the space around the houses as a workplace for various activities (Figure 1). Workplaces are comprising manufacturing cigarettes, cloth-sewing, wooden combs, brooms, carpentry, harnesses-making, string-making, bracelets, awnings, wooden crates, utensils, baskets, bread-making, metalwork, sandals, sorting garbage and rope. Meanwhile, Jurnatan Kampong has an overlapping function between the roads and the economic activities in the residential area. Therefore, this study maps the economic activities performed by the citizens of this Kampong along Semarang River in Inspection Street.

2. Methods
This study uses an empirical research method. The empirical research method is carried out by using primary data through direct observation, and secondary data through document review and extensive
literature study to have a deep background understanding of the study case. The field observation elaborates a detailed mapping of workplaces, photographic and video documentation in the study area. It examined settlement conditions in the research area in the form of the number of houses, the shape and function of the buildings and the types of community activities. Collected data were analyzed with descriptive analysis techniques to discover economic space pattern in this kampong, its informality and viability. The conclusion was wrapped from patterns and principles for workplaces in this informal housing.

The delineation of the Research Area is the linear dwelling along Inspections Street in Jurnatan Kampong. The study area is approximately 1,29 Ha, with 75 buildings. All buildings on this area were observed. The object of observation is any kinds of economic space (workplaces) along inspection street Jurnatan (see Figure 2).

3. Results and discussion

3.1. Overview of Jurnatan Kampong

Historical, Jurnatan Kampong was an extension settlement from the densely populated Bubakan, -a government centre-, which was built by Ki Ageng Pandan Arang in 1957 [8]. After that, in colonial times, it was a train station SJS (Samarang Joana Stoomtram Maatschappij) in 1883 [13], which then turned into a shopping district in the 1940's.

Source: Direct observation, July 2020

**Figure 2.** Research area in Jurnatan Kampong, Purwodinatan.
Jurnatan Kampongs has a flat topography and located in the riverbank of Semarang River. Remarkably, in the past, this river was principal economic transportation in the city centre, causing the Jurnatan to be a strategic area for living, trading, and service. Additionally, Jurnatan is next to the "Semarang Old City", the Cultural Heritage Area in Semarang, and a part of Purwodinatan Kampong, Central Semarang District.

3.2. Typology of the workplaces in Jurnatan Kampong

Due to trade and service activities, residential areas continue to develop in Jurnatan Kampong and are used for dwelling and workplaces [12] the same as the other informal settlement. The settlement is determined as a part of trade and service area by the Detail Plan (RDTRK) of Semarang City because it is located near a vibrant formal trading sector in the main street of KH Agus Salim and Johar Market.

And in the research area, several housings use the living spaces for doing economic activities (informal sector) on a small scale, and also the home industry. Several economic activities occurring in this kampong are discussed as below.

3.2.1. Store. There are several kinds of store in this area, such as a toy store (Toko Rajawali), book store, and mobile accessories stores. Usually, the stores are located in the front part of the house and close proximity to the road.

The toy store uses a large area and covers the entire building space. Meanwhile, book and mobile phone accessories stores put on the room in the front part of the house, with an additional roof and trellis as a door. In this case, trading actions as public activities are performed in privately owned buildings.

3.2.2. Wood processing workshop. The wood processing activities are apparent from used raw materials along the road. Furthermore, the kampong community process wood into new items, comprising small tables, doors, windows and other wood products. The front spaces are used for placing wood processors, raw materials and processed wood, and ready goods, while manufacturing processes are carried out in a room in the form of a gazebo outside the house. Occasionally, craftsmen use the roads, moving the goods aside during breaks, to not disturb road users. This is not done daily, but based on orders. However, processed wood remain on the edge of the road, in front of the house.

This workspace type involves public and open area use, and extends from laying processed wood along the roadside, with a length and width of 30 and 1-1.5 metres respectively.

3.2.3. Stall. The same as a store, the stall also practice its activities in the front part of the house. But sometimes, the booth only has a tent-like cover erected ahead or opposite the building, and provides space for buyers to sit and eat, with cooking activities performed directly on site. Furthermore, there are some stall types here, such as night and breakfast food and fruit juice stalls. These activities occur every day but at a specific time. Night food, breakfast and drink stalls run from afternoon till dark, at mornings, and from morning till noon respectively. Also, the workspace comprises the use of public and open areas which are placed in front and opposite the house, measuring 1-2 meters long and 1 meter wide. The mapping of workplaces can be seen on figure 3.
3.2.4. Second-hand goods pool. Used goods obtained from scavengers or people who sell, are piled along the roadsides and traded for the purpose of being processed into new products. In addition, these are regrouped based on the types by management, and comprise wood, iron, paper, cables, and other items. Numerous industries search for previously owned raw goods, to be recycled later, because this costs less than new. The second-hand collection venues occupy public space along the kampong street or outdoor area next to owner’s houses. Goods are placed on the left and right sides of the roads to ensure the pathway remains accessible.

3.2.5. Making glass aquariums. Production of glass aquariums is a business in the Jurnatan Kampungs, performed based on orders previously received. Furthermore, this is carried out opposite the frontal part of the house with a workspace area of 7 x 1.5 m, extending 5 meters on the edge of Semarang River. The space facing the house is used for transactions and the advertisement. Also, large aquariums are often built according to temporary orders, while small aquariums are available in small quantities. However, the glass raw materials are placed in front and across the house, between the street and river, while protected by trees from heat exposure and expansion.

3.3. Discussion
The utilization of additional home space as workplace has various characteristics based on the type of work performed. The type of workplace used in each activity is summarized in the Table 1.
Table 1. Typology of workplaces in Jurnatan Kampong.

| Activity             | Area          | Workplace Shape | Workplace Type          | Storage Type      |
|----------------------|---------------|-----------------|-------------------------|-------------------|
| Store                |               |                 |                         |                   |
| a. Toy Store         | ± 50 m²       | Square          | Private/Open            | Interior          |
| b. Hand phone Accessories | ≤ 5 m²     | Rectangle        | Private/Open            | Interior          |
| c. Book Store        | ≤ 6 m²        | Square          | Private/Open            | Interior          |
| Stall                |               |                 |                         |                   |
| a. Food Stall        | ≤ 4 m²        | Rectangle        | Private/Open Roofed     | Exterior          |
| b. Drink Stall       | ≤ 2 m²        | Square          | Public/Open Roofed      | Exterior          |
| Wood Processing      | ± 45 m²       | Long            | Public/Open             | Exterior          |
| Second-Hand Good Pool| ≤ 40 m²       | Rectangle        | Public/Open             | Exterior          |
| Aquarium Making      | ≤ 20 m²       | Long            | Public/Open             | Exterior          |

Toy store, hand phone accessories and book store are typical stores using the interior of the house. This condition certainly does not take up space as the statement said by Cavalcanti that the good use of space in a workplace is using open windows as a storefront for selling so that it does not use much public space for private room [14]. Even though several working activities here use public spaces, but the shape and location of these activities do not really hinder street access.

The phenomenon in Kampung Jurnatan shows that the inhabitants depend on home-based businesses to meet their daily needs [15]. This type of workplace is one of the driving forces for continuing the emergence of the informal sector, especially on the riverbank of the Semarang River due to economic vulnerability and low-paying community jobs. Several previous studies have summarized the causes of informal settlements, including a lack of urban planning and management [16]; vulnerable economy and low-paying jobs [17]; lack of affordable housing; weak governance especially in policy, marginalization; and displacement caused by conflict, natural disasters, and climate change [18].

4. Conclusion

The old kampong in Semarang, Jurnatan, has become a residential area and is developing due to the strategic position near trade and service areas. Furthermore, there is participation in service industry activities within the region. There are several typologies of the workplace, such as wood processing, glass production, second-hand centre, shops, and food and beverage stalls. The industry scale is small, located at home, and provides the raw material for larger industries. In addition, the workspaces are commonly on roadsides and in front of houses, with storage area in inside and outside of the building. Some of the workplaces occupy the informal spaces, such as the public space, bank of the river, and street side, since limited private space. The research shows that the existence of work activities commonly happens within and outside the dwellings have extensively modified the kampong space. This informality phenomenon in workplaces definitely has not happened only in Jurnatan Kampong Semarang but also applied in several informal settlements in the developing countries in the world, as stated by Rybczynski et al. But each informal settlement has its own character of typology corresponding with the community livelihood and land condition. It needs further research to confirm that.

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