Mapping of Space compatibility for Street Vendors in Urban Public Space, Taman Tirto Agung, Banyumanik, Semarang

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Abstract. The high competition to be able to work in the formal sector makes some people more absorbed in the informal sector, one of them in the field of commerce/service, namely as street vendors. The activity of street vendors occupying the public space is often considered as troublemakers because the government does not have a clear reference to arrange the location that can be used by them and in accordance with the characteristics of its activity. As well as street vendors in Taman Tirto Agung, Indonesia, who grow and develop to fill the park have degraded the visual quality of space and changed the function of the public space. The arrangement of street vendors should consider their space behaviors so that the space they use is compatible with their activities. The aim of this research is to identify the space that compatible with street vendors in Taman Tirto Agung. By using the GIS mapping and quantitative method with survey and questionnaire techniques, showed that street vendors choose compatible trade location in Taman Tirto Agung are determined by various activities around the park; activity time lasts for 24 hours; numbers of passing visitors; the flow of visitors; and settled space use.

Keywords: GIS mapping, space, street vendors, public space

1. Introduction

The high competition to be able to work in the formal sector makes some people more absorbed in the informal sector. The informal sector grows and develops in many countries, especially in developing countries, such as Thailand, India, Vietnam, Philippines, Pakistan, and Indonesia. In Indonesia, the number of informal sector’s employment has reached 60.2% of the total labor-force [1].

One form of the informal sector that has grown and developed rapidly in Indonesia’s urban area is street vendors. The informal sector is able to provide greater employment opportunities to the poor than the formal sector [2]. Poorly educated and unskilled people will be arduous to enter the formal sector because this sector requires a workforce with certain qualifications. The informal sector, especially street vendors are considered more capable of providing an attractive opportunity or a great opportunity to be free of poverty and able to meet the needs of poor families [3]. Street vendors are often located in public area (i.e. roadside, sidewalk, park, and ground) since this space is easily accessible and utilized and also does not have an exclusive feel like a private space [4–8]. Street vendors’ trait has to approach the consumer or by cutting or blocking the visitor’s path to the functional activities of the city [9,10].
According to Shirvani [11], one of the activity support is street-level retailing (by McGee and Yeung in 1977, mentioned that hawkers have the same meaning as street vendors) whose existence reinforce the function of public space as the space of interaction of urban society. However, street vendors are often treated as troublemakers who create chaos on the streets [12]. Moreover, street vendors activities in the public space are often considered to decrease the physical quality of the environment and visual space, also element out of place [13].

This research is located in Taman Tirto Agung, Banyumanik Sub-district, Semarang City. Taman Tirto Agung is one of the new active parks built in 2012 by Park and Sanitary Office of Semarang City (Dinas Kebersihan dan Pertamanan Kota Semarang). The existence of this park has attracted many visitors to come, therefore the street vendors take advantage to sell around the park. However, street vendors located in any place either inside the park, on the sidewalk or on the roadside around the park, will lead to conflicts of space utilization. Its existence degrades the visual and aesthetic quality of the park and also change the function of public space. It happens because there is no clear reference to arrange the location that can be used by street vendors and in accordance with the characteristics of its activity. Hence, it is necessary to discuss the compatible space for street vendors’ activity in Taman Tirto Agung.

Activity requires a place as an activity space that compatible with the character of its activity as the activity and the users affect each other [11]. Study on the provision of space for street vendors in urban areas still rarely done. The previous studies of street vendors have only focused on economic, social and policy [14,15], and also trade, physical, social, and policy characteristics [9,13,16,17]. As one form of real activity in urban areas, street vendors should find a compatible place for their activity. Just as Lefebvre’s statement [18] that ideal city planning is adequate to accommodate all real urban activities. The study on space compatibility for street vendors becomes very important, so that street vendors activity is no longer considered a problem and can be viewed as the potential of the urban economy.

2. Methodology

This research used the quantitative method with explanatory descriptive type based on verified deductive approach to the existing theories. Theories used include the concept of street vendors, activity and space’s theory, the theory of production space and third-space and also space behavior. Data collection was obtained by survey and questionnaire’s techniques. This research used random sampling method with disproportionate stratified random sampling technique which is a sampling technique for the population with stratified members but less proportional [19,20]. Respondents who became the object of this research are street vendors who occupy public space in Taman Tirto Agung, sidewalk, and roadside around Taman Tirto Agung. The data analysis was done by using cross tabulation (crosstab) and quantitative descriptive to identify space compatibility for the activity of street vendors in Taman Tirto Agung.

3. Space Compatibility Analysis for Street Vendors in Public Space at Taman Tirto Agung

This analysis is conducted to identify the compatible space with the perception of street vendors to be utilized as an activity space. Based on the consideration that the main activity in Taman Tirto Agung will affect and motivate street vendors to use the public space for their activity. Space utilization for street vendors’ activity based on the characteristics of its space will be discussed based on the type of activity in the area, activities around the roads, activities time, visitor accumulation, visitor’s movement pattern, and spatial pattern.

3.1. Activities Around the Roads

3.1.1. Based on Activities in The Area

The area around Taman Tirto Agung has various main activities. This makes the crowds of people who pass by, therefore it attracting the street vendors to use the park as a place to sell. As a result of this research that the street vendors were located in the park because of the varied activities in
this area, to wit entertainment/recreation/sports activities (62%), and varied activities such as education, residential, commerce, office complex, entertainment/recreation/sports about 32%. Tokman explained that informal sector (street vendors) relations support or complement the formal sector [21]. Besides that, Shirvani also explained that activity support grew and arose supporting the city’s functional activities in the area [11].

Hence, it can be seen that the relationship between street vendors and activities in the area is complementarity or street vendors as an activity support for the functional activities of the area in Taman Tirto Agung. Referring to the findings of this study, it can be explained that main activities of the area (i.e. entertainment/recreation/sports, residential, commerce, offices complex, and education) affected the street vendors’ interest to sell in Taman Tirto Agung.

3.1.2. Based on Activities Around The Park
According to the street vendors’ statement that selling on the sidewalk, park, and vacant land beside Taman Tirto Agung revealed that street vendors choose to sell on the main road sections of the park area, which is in Jl. Tirto Agung–Jl. Durian Raya who connecting Banyumanik Sub-district to Tembalang Sub-district. Besides that, street vendors choose to sell in these three locations because there are various activities. It was revealed from 46% of street vendors’ statements why they were selling at the current location because it was close to the park, and 51% of other street vendors said because it is close to the school, residential, commerce, offices complex, and park.

Refer to Shirvani’s explanation that activity support grows because they support the main functional activities of the area [11]. The street vendor has a relationship as an activity support for the functional activities of the area. Hence, the existence of street vendors in the city functional space becomes important to be planned in accordance with the characteristics of its activities. Refer to the result of this research it can be assumed that street vendors were in the main road sections of Taman Tirto Agung area because there were various activities. Other than that, it was also found that street vendors were located in the park because a) there is a connecting road between Banyumanik Sub-district and Tembalang Sub-district; b) there is a connecting road between Banyumanik Sub-district to Semarang City; and c) it is located close to the Toll Road (Tembalang/Semarang–Ungaran/Bawen/Semarang). The findings of this research, street vendors are on the main road sections or the main roads that connect between the area’s activity spaces (see Figure 1.).
3.1. Street Vendor Support

According to Lefebvre’s explanation that good city planning is able to accommodate all activities that are in accordance with behavior and users, which can be referred to as a representational space [18]. Street vendor as an activity support is an activity in the urban space and is important to accommodate in urban planning. Therefore, space that has various activities become an attractive space for street vendors so it needs to be an important consideration to accommodate the space in urban planning, also need to anticipate the space so the street vendors do not interfere with other activities.

3.2. Time of Activities

According to McGee, Yeung, and Deguchi’s explanation, time of activities of street vendors will always follow the rhythm/ time of activities in that area [9,10]. Street vendors in Taman Tirto Agung stated that their operational hours following the rhythm/ time of people’s activities in the location and around the stalls. Operational time of street vendors’ activities in the park is quite diverse, which are at 06.00–21.00; 09.00–21.00; 11.00–22.00; 15.00–22.00; 16.00–22.00; 16.00–24.00 (see Figure 2.).

![Figure 2. Street Vendors’ Time of Activities in Taman Tirto Agung](image)

The time of street vendors’ activities in Taman Tirto Agung follow the time of people’s activities, such as activities in the morning (when leaving to work/ school), during the daytime (break time), afternoon (home time), and also during the nighttime. Likewise, the length of time of the street vendors’ trade activity follows the activities of the surrounding of the people which lasts for 24 hours. Meanwhile, the time period of the street vendors’ activities in the park are divided into two types of the duration, which are 78% of the street vendors are trade everyday and the others 22% only trade weekly. This is similar to what McGee, Yeung, and Deguchi explained that street vendors’ activity time always follows the time of activity in the area [9,10].

3.3. Visitor Accumulation

According to the results of this research it was found that street vendors in the public space are mostly stated they were located in Taman Tirto Agung because of the high number of visitor/ people circulation as much as 81%, and the existence of entry/ exit points of the visitor/ people as much as 16%. This result can show that many visitors who come or passing in the area around the park, so this park has high consumer potential. This condition raises the interest of street vendors to choose whether roadside or sidewalk, in the park, or even in the vacant land beside the park as their trading location.
The high amount of visitor/people circulation can cause consumer concentration so that goods vend by street vendors will likely be sold (see Figure 3.).

![Figure 3. Visitor Accumulation in Taman Tirto Agung](image)

The findings of this research relate to the nature of street vendors who approach/cut/block visitors’ pathway to the activities in the area [9]. Street vendors’ statements about the number of visitor circulation give an explanation that in this area there is a consumer concentration, so this location is potential for street vendors. Hence this condition can be assumed that there is compatibility between locations with the environment in this area [11,22,23] so that it is necessary to be anticipation in spaces that have high consumer concentration because there will always be street vendors activities that must be accommodated.

### 3.4. Visitor Movement Pattern

Visitor movement pattern analyzed based on the flow of visitors, visitors’ activity, and visitors’ destination, namely as follows:

#### 3.4.1. Flow of Visitors

According to street vendors’ statement in Taman Tirto Agung, they are located in the park because there is visitors’ flow from home to recreational/entertainment place or vice versa as much as 41%; from home to workplace, school, recreational place and vice versa as much as 35%; and from home to workplace as much as 24%. These statements explained that road sections around the park where the street vendors are located are a connecting road from the residential to the people’s destination or vice versa. This connecting road has a high mobility of people or more precisely many people who go through this road so that the accumulation of people arises [9].

On the other hand, the characteristics of street vendors that approaching/cutting/blocking the visitors who are heading to the main activities of the area [9], hence the findings of this research indicated that street vendors choose the location around the park and road sections near the park because it is a space where street vendors are able to approaches/cuts блокs the visitors’ flow from their origin into their destination. This space which is a “flow of visitors” become an attraction for street vendors to use the public space as a space to utilize public space as a place to trade that provide goods for the needs of the people [23,24]. Street vendors are located in the park and in the road sections around the park because there is a flow of visitors, so it illustrates that there is a compatibility between the locations chosen by the street vendors and the situation [11,22,23,25].
3.4.2. Visitors’ Activity

This research revealed that 38% street vendors were located in Taman Tirto Agung because there were many people relaxing/ work out/ sightseeing, and the other 49% were vend in the park because there were many people who relaxing, trading, and working. This shows that there are a variety of visitors’ activities that lead to the visitors’ movement in that area, consequently raises interest by street vendors to use public space as a place to trade [23,25]. Therefore, with a large number of visitors with various activities, it shows the compatibility of the location with its environment.

3.4.3. Visitors’ Destination

In the site selection, street vendors are strongly influenced by the visitor movement pattern is shown from the visitors’ destination that comes looking for street vendors. Visitor movement pattern is to reflect the pattern of visitor behavior in the area [23,25]. Based on the street vendors’ answers, it is known that visitors come to the street vendors as the main purpose about 38%, and the other 62% answered visitors come to the street vendors as side purpose. Meanwhile, street vendors become people’s side purpose showing that its existence as complementary [21] because street vendors can fulfill the needs of the people. Besides that, the existence of street vendors can also be referred to as an activity support for the main activities in the area [11] (see Figure 4).

3.5. Spatial Pattern

Street vendors that located in Taman Tirto Agung mostly stated that they were settled in their current space for about 73%, while there were 27% of those who did not settle. It was revealed that the street vendors choose the location to trade in the park because it was related to the spatial pattern or the permanent use of space (see Figure 5.). Relates to the space usage permission, street vendors said

![Figure 4. Visitor Movement Pattern in Taman Tirto Agung](image-url)
they had obtained permission to utilize space from the local (such as from the head of the neighborhood, hamlet, or urban village) so that they felt safe from enforcement and eviction.

4. Conclusion
To sum up, the results of this research that examined the compatibility space for street vendors’ activity which suits with their characteristics in Taman Tirto Agung as a public space, which are a sidewalk, park, and vacant land beside the park.

Specifically, these things can be concluded that street vendors in determining suitable locations for trading, they consider things like (1) the variety of the area’s main activities, such as entertainment/recreational/sports, education, residential, commerce, and offices complex. The relationship between street vendors and the activities in the area are complementary where the street vendor is an activity support of the area’s main activities. (2) The variety of activities around the road is close to the park, school, residential, commerce, and offices complex. The existence of the street vendors around the road is an activity support for area’s functional activities. (3) The time of activities of street vendors follows the rhythm/time of people’s activities which lasts for 24 hours. The operational time of street vendors are divided into six, which are 06.00–21.00, 09.00–21.00, 11.00–22.00, 15.00–22.00, 16.00–22.00, and 16.00–24.00.

(4) Street vendors choose a location to trade on a place that has high visitor/people circulation. Space with high visitor/people circulation creates a concentration of consumers, so there is a high likelihood of selling goods by street vendors. (5) Street vendors prefer the location which is the connecting lane from people’s origin into their destination or vice versa, and also there is a various of visitors’ activities around it. In addition, street vendor as an activity support and is complementary because its existence becomes a side purpose for Taman Tirto Agung visitors so that street vendors’ activities are able to meet the visitors’ needs. (6) The space usage of street vendors is settled because they assumed that they have obtained permission from the local residents, so they feel safe from eviction. Therefore, it is necessary to anticipate space that has characteristics that are suitable or compatible for street vendors because there will always be street vendors’ activities that need to be accommodated so their existence does not interfere with other activities around them.
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