The Study of Public Open Space effectiveness in Makassar Waterfront City using Good Public Space Index (GPSI)

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Abstract. Anjungan Pantai Losari is one of the famous public spaces in Makassar; it is a primary landmark in the city. Nevertheless, this public space is considered not optimal because it is only crowded with people's activities in the afternoon and night. On the other hand, some theories argued that a good public open space has the ability to accommodate various people all day long. This study was conducted to evaluate and to study the effectiveness of public open space using the Good Public Space Index (GPSI). There are six variables used in GPSI: intensity use, the intensity of social use, people’s duration of stay, temporal diversity use, variety of use, and diversity of users. This study found that the average of GPSI value shows the high score of Anjungan Pantai Losari effectiveness. However, two variables, intensity of use and people duration of social use were still at a low level. It was expected that this research could be a reference to develop spatial planning, especially the improvement of public open space quality.

1. Introduction

Public open space is a universal urban facility. Every citizen has the right to access, utilize and enjoying activities in it. In this case, a good public open space is a place that can be accessed by various characteristics of people including ages, gender, education; it could be utilized all day long [1-4]. Therefore, it is necessary for a city to provide adequate public open spaces to accommodate social activities for its citizens [5].

The effectiveness of public open spaces is not only indicated by the existing plazas or parks in the urban area. More than that, the quality of public spaces could be defined by the advantages that can be felt by people. A good public space can be seen from the number of people who use the place [6]. The more amount and characterized the visitors, the better the quality of public open space. Not only the subject or the visitor but also the diversity of activities become the indicators of good public open space [4,7]. Lack of interaction in public spaces indicates the failure of the space in facilitating people's needs [3].

Makassar, as a coastal area, had been providing public open spaces to accommodate people's activities as well as enjoying the sea view and the urban atmosphere. Anjungan Pantai Losari is the landmark of Makassar City which is used as a primary place for various events. Nevertheless, based on initial observation, Anjungan Pantai Losari looks quiet in the morning and in the afternoon. This condition is contrary to the theory about ideal public open space which requires the accessibility for all of the people every time.
A study about performance evaluation in Anjungan Pantai Losari as public space is required. This evaluation is focused on the assessment of function and characteristics of public open space. This study used Good Public Open Space Inde with its six variables: intensity use, intensity of social use, people’s duration of stay, temporal diversity use, variety of use, diversity of users. It is expected that the results of this study could be references to develop spatial planning particularly in improving the public open space effectiveness.

2. Literature Review

2.1. An Overview of Waterfront Public Open Space

Public open space is understood as sharing a place in an urban context. Human is a social creature who needs interaction both to the other people and also to the environment. The people dependency on public open space becomes the reason why a city should provide a good public space as one of green infrastructure. Indirectly, public open spaces influence people’s behavior, health and prosperity [7].

Public open spaces which are located in the coastal area have their own uniqueness. The water element, such as sea, rivers, lakes, and canals, become points of interest for people. In spatial planning, public open space should collaborate with the water element and hardscape in the land. The people must have access to touch and play with water. In addition, all of buildings that obstruct sea views must be removed. The utilization of natural elements, the availability of facilities and the hygiene of the environment especially the water, are the requirements for the high quality of public spaces in the coastal areas.

Public open spaces can be categorized into two groups: green space and non-green space [8]. Green open space includes city parks, city forests, cemetery, green lanes in the middle of roads and border areas. Meanwhile, the non-green spaces could be plazas, streets, pedestrian ways, and bicycle lanes. Open spaces are also grouped in natural and artificial spaces [9]. Natural open spaces are dominated by natural elements like grass, vegetations, sands, and water. Artificial open spaces consist of concrete and bordered by buildings.

2.2. Characteristic of Public Open Space

In order to reach the effectiveness of public open spaces, at least there are three values that must be owned by the place: responsive, democratic and meaningful [10].

2.2.1. Responsive. Responsive value refers to the ability of public open spaces to accommodate people's needs. Public spaces play a role as gathering points and places for various events [11]. There are three variables to indicate a responsive public open space: activities, time, and user intensity. A good public space becomes a place for citizen’s activities [2, 12], both active and passive activities [1]. Passive activities such as sitting and relaxing, walking while enjoying the atmosphere of public space, and observing the situation. Meanwhile, active activities refer to interaction with other people or communities, to communicate, or to discuss.

Activities could be divided into three groups [4]:

- Process activities: the movements from one place to another (cycling, driving, walking);
- Physical contacts: the interaction between two persons or more (talking, trading, playing together, doing sports together, baby-sitting);
- Traditional activities: the individual activities (sitting, standing, playing alone, talking at phone, watching/observing, reading, doing individual sports).

The duration of public space utilization also becomes an indicator of responsive public space. A good public space can certainly be used by the community in the morning, afternoon, evening and night. The expansive use of public open space encourages the emergence of creative activities. Besides activities and time, intensity of users is also used as a benchmark to identify a responsive public space [13]. A good public space could accommodate people in a large amounts. It is related to the total area of public space.
2.2.2. Democratic. A democratic public open space means the ability of the space to protect citizen’s rights. Public spaces are places for discussion for all people [3]. Therefore, public spaces should be utilized freely without discrimination [2, 6]. The public space effectiveness depends on its ability to accommodate people from various backgrounds: age, gender, education, and works. Good accessibility in public space gives an opportunity for people to enjoy urban public space [1, 13]. A democratic public space facilitates activities for disabled people. It is related to special lanes and amenities provision. Accessibility is also related to permeability; it is an ability for public space to provide various access [12]. Therefore, public spaces could be reached by driving, cycling or walking.

2.2.3. Meaningful. Meaningful refers to an opportunity for people in public spaces to interact with themselves, to other people, and to the environment. Individual activities provide a chance to explore the sense of the place. The various meanings can be obtained from the form and function of public spaces elements [12]. Interaction with others and to the environment efforts meaningful creative activities.

3. Research Method

3.1. Location of Study and Data Collection
This research was conducted in Anjungan Pantai Losari, Makassar City (Figure 1). Located in the coastal area, Anjungan Pantai Losari is a primary plaza utilized by people to various local, national and international events. Besides the commercial street, Jalan Penghibur, Anjungan Pantai Losari is also boarded by shops, restaurants, and hotels to support activities in public open space.

Primary and secondary data were needed to answer the issue of public space. There are several data that were used in this study such as the number of visitors, the number of groups and communities, duration of activities, the variation of activities, and visitors’ characteristics. Observation and questionnaires were conducted to collect data. The data collection was held seven days, started from morning until night.

![Figure 1. Anjungan Pantai Losari where the study was conducted](image)

3.2. Analysis Method
Good Public Space Index (GPSI) method was used to analyze the data. The GPSI method as a tool to measure the ability of public open space to work as its function. The effectiveness of public space was indicated by score from 0 to 1. There are five level of the effectiveness of public space, such as: very low (0-0.20); low (0.21-0.40); sufficient (0.41-0.60); high (0.61-0.80); and very high (0.81-1). Before defining the level of public open space effectiveness, it was needed to calculate the index of each variable of GPSI.
a. Intensity of use (IU)
IU refers to the amount of people who do activities in public open space that is observed. The more people amount, the better public open space performance.

\[
IU = \frac{\text{average amount of visitors}}{\text{the highest amount of visitors}}
\]

b. Intensity of social use (ISU)
ISU refers to the number of people involved in groups or communities. In this study, one group consists of two or more people. The more groups and communities, the better the performance of the public open space.

\[
ISU = \frac{\text{number of people who involve in groups}}{\text{the highest amount of visitors}}
\]

c. People’s duration of stay (PDS)
PDS refers to how long people use public open spaces. The more duration of public space utilization, the better the performance of the place.

\[
PDS = \frac{\text{average duration of utilization}}{\text{the longest duration}}
\]

d. Temporal diversity of use (TDU)
TDU refers to the separation of activities that happen in one period of observation. A good public open space avoid domination of time and space utilization. That means the amount of by that occur in morning, afternoon, evening and night are equal. This variable is measured by Simpson’s Diversity Index.

Simpson’s Diversity Index = \((1 - D)\)

\[
D = \frac{N(N-1)}{\text{total } n(n-1)}
\]

where:
- \(n\) = the amount of particular activities
- \(N\) = the total amount of activities in all categories

e. Variety of use (VoU)
In this study, a variety of use was divided into four groups: process activities, physical contact, transitional activities, and optional activities. The more variation in utilization, the better the performance of public open space. Same to TDU, this variable is also calculated by Simpson’s Diversity Index.

f. Diversity of users (DoU)
DoU refers to various people's characteristics. In this study, the diversity of users was grouped based on gender and ages. This variable is also calculated by Simpson’s Diversity Index.

3.3. Research Variable
Research variables in this study were determined based on the GPSI theory. Table 1 shows the variables of GPSI as well as their sub-variables that are used as tools in data collecting and analyzing.
### Table 1. Research variables

| Variabel               | Sub Variabel                                                                 |
|------------------------|------------------------------------------------------------------------------|
| Intensity use          | -                                                                            |
| Intensity of social use| -                                                                            |
| People’s duration of stay| Morning, afternoon, evening, night.                                      |
| Temporal diversity use | Process activities (cycling, walking)                                       |
|                        | Physical contact (talking, trading, playing with children, babysitting, doing sports with friends) |
|                        | Transitional activities (sitting, standing, playing alone, talking at phone, cleaning up, watching/observing, reading, doing individual sports) |
| Variety of use         | Women (age: 0-5; 6-15; 16-20; 21-35; 36-55; >55)                            |
| Diversity of users     | Men (age: 0-5; 6-15; 16-20; 21-35; 36-55; >55)                              |

### 4. Findings and Discussion

#### 4.1. Intensity of Use

Table 2 shows the number of visitors of Anjungan Pantai Losari in one week during morning, afternoon, evening and night, as well as the results of intensity of use analysis using GPSI. The data shows that night was the favorite time for people to visit Anjungan Pantai Losari. The number of people who came to Anjungan Pantai Losari at night was 351 and reach the highest number on Saturday night with the amount of 569 people. In contrast, only 31 people visited Anjungan in the morning and afternoon. At the end of the table, the intensity of the use index shows 0.311 scores. The intensity of use index score indicated the low level of effectiveness of Anjungan Pantai Losari to accommodate people with a great amount in the morning and afternoon. The gap between utilization in morning-afternoon and evening-night was caused by the lack of shelter to protect people from sun heat. The hot weather in the morning and afternoon rise the discomfort and unpleasant for people. The next reason was working time. Generally, people in Makassar works from 8 a.m. until 5 p.m. from Monday to Friday.

| Time       | Mo | Tue | Wed | Thu | Fri | Sat | Sun | Total |
|------------|----|-----|-----|-----|-----|-----|-----|-------|
| Morning    | 40 | 32  | 37  | 177 | 103 | 48  | 114 | 551   |
| Afternoon  | 17 | 26  | 18  | 23  | 20  | 15  | 31  | 150   |
| Evening    | 31 | 95  | 178 | 211 | 203 | 242 | 314 | 1274  |
| Night      | 351| 442 | 427 | 375 | 398 | 569 | 417 | 2979  |

Average: 176,929  
Highest amount: 569  
IU: 0.311

#### 4.2. Intensity of Social Use

Table 3 shows the data and analysis result of the number of people involve in groups. Based on data, the number of individuals in groups was 4,544 people from 4,954 people who visited Anjungan Pantai Losari. It is clearly read that these groups do their activities in the evening and night. The index of ISU analysis resulted in a score 0.917.
The score resulted from the GPSI analysis means that the effectiveness of Anjungan Pantai Losari was at a very high level in accommodating groups and community. Generally, people come with their family and friends. They will be several small groups based on people’s communities. Physically, Anjungan Pantai Losari area, the comfortable and romantic ambiance in evening and night become reasons why people want to spend their time in the place. The appearance of communities indicated that Anjungan Pantai Losari, as public open space, is successfully giving the meaning and the sense of place for people.

Table 3. Intensity of social use

| Time  | Mo | Tue | Wed | Thur | Fri | Sat | Sun |
|-------|----|-----|-----|------|-----|-----|-----|
| Morning | 37 | 25  | 32  | 153  | 91  | 42  | 97  | 477 |
| Afternoon | 15 | 20  | 14  | 20   | 15  | 14  | 27  | 125 |
| Evening | 29 | 90  | 151 | 193  | 188 | 229 | 295 | 1175|
| Night  | 325| 421 | 384 | 349  | 370 | 532 | 386 | 2767|

Amount of people involved in groups 176,929
Total amount of visitors 569
ISU 0.311

4.3. People’s Duration of Stay

Table 4 shows the average of visitors’ duration time in Anjungan Pantai Losari. Generally, people spend time about only fifteen minutes in the morning and afternoon. Exception on Sunday morning, citizens spends about three hours because of car-free day event. In the evening and night, people spend their time one until three hours. On Saturday night, people could stay longer for five hours. At the end of the table, PDS index shows 0.275 scores; and it was categorized at a low level.

Based on PDS index calculation, it could be said that Anjungan Pantai Losari still not effective in accommodating temporal diversity use. The visitors were still not comfortable to linger for activities, especially in the morning and afternoon. In line with the result of the intensity of use analysis description, the quietness of Anjungan Pantai Losari in the morning and afternoon was caused by the lack of shelters and people’s work-time. Generally, the visitors who come in the morning and afternoon were the local tourists who want to take pictures. Special on Sunday morning, the car-free day event becomes a trigger for people to spend their time longer. This event started at 6 A.M. until 10 A.M., provides various activities and a tent for shelter.

Table 4. People’s duration of stay

| Time   | Mo  | Tue | Wed | Thur | Fri | Sat | Sun | Total |
|--------|-----|-----|-----|------|-----|-----|-----|-------|
| Morning | 0.25| 0.25| 0.25| 0.25 | 0.25| 1   | 3   | 5.25  |
| Afternoon | 0.25| 0.25| 0.25| 0.25 | 0.25| 0.5 | 0.5 | 2.25  |
| Evening | 1   | 2   | 1   | 1    | 2   | 3   | 3   | 13    |
| Night  | 2   | 2   | 2   | 2    | 2   | 5   | 3   | 18    |

Average 176,929
Longest duration 569
PDS 0.311
4.4. Temporal Diversity Use
Table 5 shows the data related to the number of temporal diversity activities in Anjungan Pantai Losari. Compared to the activities in the morning and afternoon, people's activities in the evening and night were more variable. The Simpson’s Index Diversity analysis for TDU resulted in 0.739 scores, and it was categorized at a high level. It means Anjungan Pantai Losari was effective in providing space for various activities. Based on observation, people tend to use Anjungan for sports in the evening. At night they prefer playing and relaxing.

Table 5. Temporal diversity use

| Time    | Amount of Temporal Diversity Use (n) | Total n | n-1 | n(n-1) |
|---------|-------------------------------------|---------|-----|--------|
| Morning | Mon 6 Tue 7 Wed 7 Thur 14 Fri 9 Sat 7 Sun 12 | 62      | 61  | 3782   |
| Afternoon | Mon 6 Tue 6 Wed 7 Thur 6 Fri 7 Sun 14 | 45      | 44  | 1980   |
| Evening | Mon 5 Tue 12 Wed 11 Thur 12 Fri 11 Sat 14 Sun 14 | 77      | 76  | 5852   |
| Night   | Mon 12 Tue 13 Wed 12 Thur 11 Fri 13 Sat 14 Sun 12 | 87      | 86  | 7482   |

Total (N) 271
N-1 270
N(N-1) 73170

D= Total n(n-1)/N(N-1) 0.261
Simpson's Index of Diversity (1-D) 0.739

4.5. Variety of Use
From table 6, some activities that occur in Anjungan Pantai Losari could be identified. In this research, activities were divided into four categories: process activities, physical contact, transitional activities, and other activities. Based on observation, five most activities in Anjungan Pantai Losari were talking (3.005), sitting and relaxing (2.958), taking a picture (972), standing and enjoying the panorama (666), and walking (300). Other activities that also occur were trading, babysitting and playing. At the bottom of the table, Simpson’s Index Diversity of VoU result shows 0.760 scores.

The value of VoU index means that Anjungan Pantai Losari has high effectiveness as public open spaces for activities. The total area of this place could accommodate various activities of citizens. In addition, the high accessibility of Anjungan become a reason why people choose Anjungan Pantai Losari for relaxing and recreating. However, generally, people prefer to do passive activities such as sitting, talking and enjoying sea views. The more active activities like playing, doing sports or cycling were rarely seen. It is because of the lack of facilities for active activities.

4.6. Diversity of Users
Table 7 shows the diversity of users in Anjungan Pantai Losari based on gender and age. Data was collected from observation in a week. Based on data, it was identified that there are more female visitors than males. Furthermore, both from female and male groups, the average ages of people were 21 until 35 years old. There were about 1002 females and 819 males who visited Anjungan Pantai Losari during the observation. The significant differences were showed in the number of toddlers (0 – 5 years old) and elderly people (above 65 years old). It can be seen in the table that the number of toddlers was 150 people; meanwhile, the number of elderly people was only 119 people. At the end of the table, the analysis resulted in the Simpson’s Index Diversity of DoU; it was 0.885.

The analysis result of DoU (0.885) identified that the effectiveness of Anjungan Pantai Losari to accommodate the diversity of users is categorized at a very high level. Besides the beauty of the sea view, some interesting activities could attract people. Supported by various activities such as music
and culinary festival, Anjungan Pantai Losari become one of the favorite destinations for people of every age.

Although Anjungan Pantai Losari had been successfully reaching a very high level, the data also showed that this public space was still not children-friendly and not elderly-friendly. Based on short interviews and observation, it was identified that facilities for these two groups of age are still negative. The elderly people need shelters to protect themselves from the sun heat; as well as the facilities for them who use a wheelchair. The broken pedestrian ways and the stairs in Anjungan Pantai Losari make these wheelchairs users difficult to move from one place to another.

| Variety of Use               | Total n | n(n-1) |
|-----------------------------|---------|--------|
| Proces activities           |         |        |
| Cycling                     | 21      | 420    |
| Walking                     | 300     | 89700  |
| Physical contact            |         |        |
| Talking                     | 3005    | 9027020|
| Trading                     | 157     | 24492  |
| Baby-sitting                | 115     | 13110  |
| Playing with friends        | 168     | 28056  |
| Doing sports with friends   | 6       | 30     |
| Transitional activities     |         |        |
| Sitting                     | 2958    | 8746806|
| Standing                    | 666     | 442890 |
| Playing alone               | 174     | 30102  |
| Talking at phone            | 138     | 18906  |
| Cleaning up                 | 6       | 30     |
| Watching/observing          | 267     | 71022  |
| Reading                     | 0       | 0      |
| Taking care animals         | 8       | 56     |
| Doing sports alone          | 12      | 132    |
| Other activities            |         |        |
| Fising                      | 1       | 0      |
| Busking                     | 11      | 110    |
| Taking pictures             | 972     | 943812 |
| Sleeping                    | 8       | 56     |
| Total (N)                   | 8993    |        |
| N-1                         | 8992    |        |
| N(n-1)                      | 80865056|
| Total n(n-1)                | 19436750|
| D = Total n(n-1)/N(N-1)     | 0.240   |
| Simpson's Index Diversity   | 1-D     | 0.760  |
Table 7. Diversity of users table

| Subject (years old) | Total n | n(n-1) |
|---------------------|---------|--------|
| Female              |         |        |
| 0-5                 | 71      | 4970   |
| 6-15                | 353     | 124256 |
| 16-20               | 536     | 286760 |
| 21-35               | 1002    | 1003002|
| 36-55               | 400     | 159600 |
| 56-65               | 195     | 37830  |
| > 65                | 65      | 4160   |
| Male                |         |        |
| 0-5                 | 79      | 6162   |
| 6-15                | 370     | 136530 |
| 16-20               | 453     | 204756 |
| 21-35               | 819     | 669942 |
| 36-55               | 383     | 146306 |
| 56-65               | 175     | 30450  |
| > 65                | 54      | 2862   |
| Total (N)           | 4955    |        |
| N-1                 | 4954    |        |
| N(N-1)              | 24547070|        |
| Total n(n-1)        | 2817586 |        |
| D = Total n(n-1)/N(N-1) | 0.115 |        |
| Simpson's Index Diversity = 1-D | 0.885 |        |

The average of GPSI value of Anjungan Pantai Losari shows the high level. Table 8 consists of the resume of each variable index. Intensity of social use and diversity of social use index indicate a very high level. Furthermore, temporal diversity use and variety of use are at a high level. However, intensity of use and people's duration of social use is still categorized at a low level.

Table 8. The Average of good public space index Anjungan Pantai Losari

| No | Variable                        | Index  | Level |
|----|---------------------------------|--------|-------|
| 1  | Intensity of Use                | 0.311  | Low   |
| 2  | Intensity of Social Use         | 0.917  | Very high |
| 3  | People Duration of Social Use   | 0.275  | Low   |
| 4  | Temporal Diversity Use          | 0.739  | High  |
| 5  | Variety of Use                  | 0.792  | High  |
| 6  | Diversity of Users              | 0.885  | Very high |
|    | Total                            | 3.920  |       |
|    | Average Index                    | 0.653  | High  |

In addition, the analysis of the relation of GPSI variables and the public open space characteristic was conducted (Table 9). Based on potential and problems description, it was identified that Anjungan Pantai Losari had been success to be a democratic public open space. However, this public space was
still not responsive to its visitors; as well as meaningless to them. An improvement planning is required to raise the effectiveness of Anjungan Pantai Losari as public open space.

Table 9. The matrix of good public space index variables and public open space characteristic

| No. | Variable                  | Information                                                                 | Responsive | Democratic | Meaningful |
|-----|---------------------------|------------------------------------------------------------------------------|------------|------------|------------|
| 1   | Intensity of Use          | It is visited only in the evening and night                                  | X          | X          |            |
|     |                            | Lack of shelters                                                            |            |            |            |
|     |                            | There are some groups and communities                                        |            |            |            |
| 2   | The of Social Use         | Adequate area                                                               | √          |            |            |
|     |                            | Comfortable in evening and night                                            |            |            |            |
|     |                            | Lack of utilization in the morning and afternoon                            | X          |            |            |
| 3   | People Duration of Social Use | Car free day on Sunday morning as a positive trigger.                      |            | √          | √          |
|     |                            | Diversity of activities only occur at afternoon and night                   |            |            |            |
| 4   | Temporal Diversity Use   | Different activities at morning-afternoon and evening-night                 | X          |            |            |
|     |                            | Dominated by passive activities                                            |            |            |            |
| 5   | Variety of Use           | Ease access (high permeability)                                            |            | √          |            |
|     |                            | Various activities                                                         |            |            |            |
|     |                            | Unfriendly for children and elderly people                                  |            |            | X          |
| 6   | Diversity of Users       | Dominated by the youth (21-35 years old.                                  |            | √          |            |
|     |                            | Interesting seaview                                                        |            |            |            |
|     |                            | Visited by various age groups of people                                    |            |            | √          |

5. Conclusion
The result of this study that the effectiveness of Anjungan Pantai Losari as a public open space was categorized at a high level. It can be seen from its democratic value. The ease of accessibility, the diversity of activities and the ability to accommodate people from various backgrounds are indicators of democratic public open space. Nevertheless, there are some gaps needed to follow up. Anjungan Pantai Losari was considered to be lacking in responding to citizens’ activities. Furthermore, people still cannot touch the meaning of the place while they do their activities in Anjungan Pantai Losari. Generally, the identified problems relating to responsive value are the lack of activities in the morning and afternoon. It is caused by the lack of shelter, such as trees, to protect people from the sun’s heat. The other problem is the domination of passive activities, such as sitting, chatting, playing on gadgets, and taking a picture. The lack of supporting facilities for children to play and to do sport becomes a reason why people simply stay in public open space. It is not parallel to the public open spaces purpose which requires an active and rousing atmosphere.

References
[1] Carmona, M., Tiesdell, S., Heath, T., Oc, T. (2003). Public Places, Urban Space: The Dimensions of Urban Design. London: Architectural Press.
[2] Darmawan, E. (2009). Ruang Publik dalam Arsitektur Kota. Semarang: Badan Penerbit Universitas Diponegoro.
[3] Siahaan, J. (2010). Ruang Publik: Antara Harapan dan Kenyataan. Buletin Tata Ruang, Edisi IV (Juni-Juli 2010), page. 11-16.
[4] Zhang, W., dan Lawson, G. M. (2009). Meeting and greeting: activities in public outdoor spaces outside high-density urban residential communities. URBAN DESIGN International,
[5] Siregar, J. P. (2014). Assessment of Public Space Quality Using Good Public Space Index (Case Study of Merjosari Sub District, Municipality of Malang, Indonesia). Procedia Social and Behavioral Sciences 135 (2014), page 10-17.

[6] Gumano, H. N., citizens, T., dan Nur, H. (2016). Kajian Tingkat Efektifitas Ruang Publik yang Tersedia Pada Pusat Kota-Kota di Provinsi Sumatera Barat Berdasarkan Metode “Good Public Space Index (GPSI)”. Journal of Faculty of Civil and Planning Engineering, Bung Hatta University Vol. 1 No. 3.

[7] Aljosha, E. Z., Eriawan, T., dan Nur, H. (2016). Menilai Tingkat Keragaman Ruang Publik Pada Taman Imam Bonjol di Kota Padang sebagai Masukan dalam Perbaikan Kualitas Ruang. Jurnal Fakultas Teknik Sipil da Perencanaan, Universitas Bung Hatta, Vol. 1 No. 3.

[8] Undang-Undang Nomor 26 tahun 2007 tentang Penataan Ruang.

[9] Carmona, M., Magalhaes, S., Hammond, L. (2008). Public Space, The Management Dimension. Routledge, London and New York: Taylor and Francis Group.

[10] Carr, S., Frances, M., Rivlin, L. G., and Stone, A. M. (1992). Public Space. Cambridge University Press.

[11] Mandipour, A. (1996). Design of Urban Space: Inquiry into a Social-Spatial Process. Chichester: John Wiley & sons Ltd.

[12] Bentley, I., Alcock, A. Murrain, P., McGlynn, S., and Smith, G. (1985). Responsive Environment. A Manual for Designers. Burlington: Architectural Press.

[13] Parkinson, J. R. (2012). Democracy and Public Space. The Physical Sites of Democratic Performance. Oxford: University Press.