

Conference Paper

Evaluation of Thematic Parks in Bandung City Based on Spatial Equity Perspective

Rani Widyahantari¹ and Iwan Rudiarto²¹Research Institute for Human Settlements and Housing, Ministry of Public Works and Housing, Bandung, Indonesia²Department of Urban and Regional Planning, Diponegoro University, Semarang, Indonesia

Abstract

The existence of Green Open Spaces (GOS) in big cities tend to decrease and not evenly distributed. Whereas, the role of GOS is essential for ecological, social, and economic function, also as the city's aesthetic. Bandung City attempted to meet the needs of GOS by developing many thematic parks, the park which added by unique theme. Thematic parks were built to improve citizen happiness index, but its locations were mostly located in the city center as it is a revitalization of many old city parks. This research is addressed to evaluate the thematic parks provision from spatial equity perspective which seen from the distribution pattern and service range. The distribution pattern analyzed by nearest neighbor analysis of GIS while the service range will be viewed both from normative sight and user. The results showed that the provision of thematic parks in Bandung City only focused on the particular area and had lack of service coverage which indicates spatial injustice. Some areas oversupply and at the same time not serviced at all by thematic parks. None of the thematic parks meets the city scale category. People feel the presence of thematic parks in their neighborhood is very beneficial. Proximity distance is not only the main reason for visiting the park but also influenced by attractiveness and the suitability of the theme with the community's characteristics.

Keywords: thematic park, spatial injustice, distribution pattern, service range

Corresponding Author:

Rani Widyahantari

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1. Introduction

Big cities with urbanization will always face land provision problems, especially for GOS. According to the National Planning Agency of Indonesia 2017, urbanization level in Indonesia reached 53.6 % in 2015 and will reach 66.6% in 2035. Urbanization can make cities more lively but on the other hand will put pressure on the provision of land, especially for GOS. Cities that lack of GOS would become an uncomfortable place to live and to do activities [1]. The existence of GOS in big cities is essential because it gives not only environmental but also social benefits [2]. As discussed by Zhang [3],

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the addition of GOS can lower surface temperatures up to 0.050C. City park as part of GOS can be as a democratic place where everyone can use it [4].

Along with that, Ali [5] explained that nowadays a city park could be as a recreation place, tourist attractions and space to enjoy the natural beauty at all levels of society. GOS is a fundamental requirement which if not provided proportionally then it will show the inability of the government in improving the quality of urban life and creating ecological balance [6]. The provision of GOS in big cities is difficult to meet because it can not give economic benefits. The value of land in town is meaningless if it is only used for green space, whereas the provision of GOS is a simple idea to balance the space utilization which now has just concentrated for commercial matters [7].

Nowadays, the existence of GOS in big cities is not even [8, 9]. Some parts of the town are well served and very well planned with city parks, but also some part of other city has not served at all. Everyone should have the same access to the park as we can connect with nature so that our physical and mental health can be increased [10]. Cities with high levels of urbanization and space compressed societies need an investigation into their opportunities for play and recreational activities [11]. Spatial equity is an essential component of sustainable urban planning which can be evaluated with spatial accessibility measures [12]. Furthermore, the provision of parks that only focus on a region can trigger a gap between groups, so it is necessary to assess spatial distribution and its access as part of environmental justice [9].

Bandung as the fourth largest city in Indonesia is also experiencing problems in GOS provision. Data from Cemetery and Gardening Agency of Bandung City showed that GOS provision in 2011 only reached 11.43% of the total area which consists of 6.39% Public GOS and 5.73% private GOS. The existence of GOS throughout Bandung city is uneven, City Sub-Region (SWK) which has the widest GOS is Ujungberung (351,76 Ha) while Karees is SWK with the smallest GOS (26,67 Ha). GOS in the form of city parks is only 215,36 Ha or 1.29% of Bandung City area. Currently, Bandung City Government began to show their attention in fulfilling the GOS and public space by building many thematic parks. In the future, this city will be planned to be a green city where GOS will be available proportionally [13]. The purpose of building thematic parks is to make Bandung a livable and lovable city also increased the happiness index of society. Bandung city also shows an improvement in Indonesia Most Livable City Index assessment of 2017 [14]. In 2011 Bandung city lied at the bottom tier (the city with below average of a livable index), but in 2014 climbed up to average level (the city with an average score of a livable index) and successfully maintained until 2017. That achievement was one of

them caused by the existence of the thematic park that supports one point of livable city assessment which is public open space availability.

The thematic park is the same as a general city park, but the difference is in the concept wherein each park has a different theme and has an attractive physical design and facilities. Parks which have a unique theme can make visitors fascinated so the park which was first a passive park can become an active park. The thematic park has been able to fulfill its social function because nowadays children and teenagers are not only playing in the mall to find comfort but also can play in public open space. Thematic parks can support the existence of communities in Bandung because it can accommodate various activities. Thematic parks were a revitalization of many old city parks which mostly located in the downtown area, so its presence has not spread throughout the city of Bandung. The uniqueness and attractiveness of thematic parks invite visitors to come from many regions even from outside the city of Bandung. It causes a change in service scale from neighborhood park into a city scale park which can make a community within the service area would become uncomfortable and reluctant to visit the park [15].

This research is addressed to evaluate the thematic parks provision from spatial equity perspective which seen from the distribution pattern and service range. Spatial justice in spatial concepts emphasizes the fairness and equitable distribution of resources, services, and access [16]. The quality of urban life must be increased; therefore it is necessary to observe from both spatial and user perspectives [17]. Observation of these two perspectives is required because it can provide different views. Spatial considerations can give an objective look while user-side observations can provide a subjective opinion. Therefore, this research will make observations from the user's side, namely residents who are within the range of thematic park services. This study can also become an evaluation of the Bandung City Government program to fulfill the provision of GOS with thematic parks.

2. Research Methode

Data collection is done based on primary and secondary data sources. The primary data were collected by questionnaires to obtain information about the usefulness of parks within the population in the service range area. Regulatory documents, planning documents, policies, and report used as the secondary data for this research. This research takes place in Bandung City because this city is currently making efforts to increase its availability of GOS by building many thematic parks. The thematic parks observed in this research are parks that have been built until 2017, i.e. 30 parks.

The samples for service range observations from the user side are Elderly Park (urban village park) and Film Park (hamlet park). The population is residents within the radius of 1.5 km of Elderly Parks and radius of 1 km of Film Park which consist of 100,344 inhabitants (Elderly Park 50,441 inhabitants (50%), Film Park 32,897 inhabitants (33%) and overlapping area 16,997 inhabitants (17%)). The service area of both parks overlaps each other in Lebak Siliwangi, Lebak Gede, Citarum and Tamansari area (See Figure 1). This research obtained as many as 183 samples which then proportioned based on the number of residents, i.e., Elderly Park area 92 samples, Park Film area 59 samples and overlaps area 32 samples.

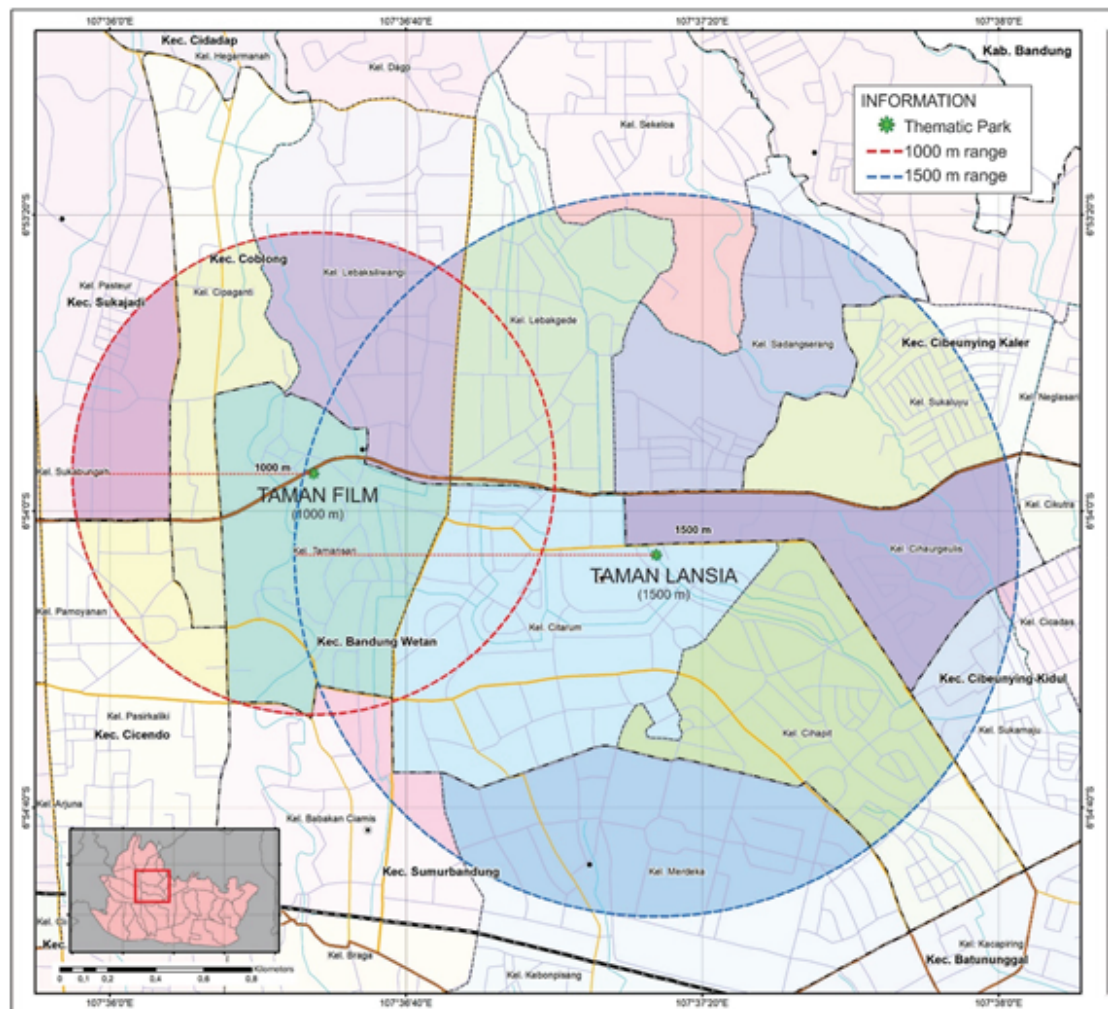


Figure 1: The service area of Elderly Parks and Film Parks.

2.1. Distribution pattern analysis

This study will analyze the distribution patterns of thematic parks using the nearest neighbor analysis on SIG. The principle of this analysis is to measure the distance

TABLE 1: Parks Services Coverage based on normative.

No	Park category	Population (person)	Wide area (m ²)	Standard (m ² /person)	Service coverage (m)
1	Neighbourhood Park	250	250	1,0	100
2	Hamlet Park	2.500	1.250	0,5	1.000
3	Urban Village Park	30.000	9.000	0,3	1.500
4	Sub-district Park	120.000	24.000	0,2	2.000
5	City Park	480.000	144.000	0,3	5.000

between each center with the nearest center/neighbor, then averaged the entire length of the nearest neighbor. The closest neighbor index is expressed as the Nearest Neighbor Ratio observed with Expected Mean Distance. If the index is less than one, then the pattern will be form clustered, but if greater than one then the trend will be form dispersed. Input data for this analysis thematic parks location and wide area of Bandung City.

2.2. The services range analysis based on normative

Ideally, the provision of parks within a city should follow the standard which also tiered based on the number of served population. The service range of municipal facilities such as town parks is typically in the 2 km range, while neighborhood facilities like playgrounds generally are in the 1 km range [18]. The primary reference that used to analyze the park's service range is the Indonesia National Standard (SNI) 03-1733-2004 about Procedures for Urban Housing and Environmental Planning [19]. The service range of park in SNI is only set up to the hamlet scale. Therefore another relevant reference needed with some adjustment such as park hierarchy and the number of population. The service range of thematic parks analyzed with the buffer on GIS by identifying the hierarchy of each park based on a wide area and then mapping the service coverage with the buffer value (see Table 1). The results of the buffer analysis can describe the underserved areas, well-served area or over-supply by thematic parks.

2.3. Services range of thematic parks analysis based on user

This analysis is used to see the actual service range of thematic park based on the user side. The user is the population within the service area of thematic parks. The distance traveled by the user to reach the thematic park is analyzed with Origin to Destination

on GIS. This study will also obtain the community's view about thematic parks through questionnaires with variables, i.e., respondent characteristics (gender, age, education, occupation); park utilization (activity, intensity, and duration); and community's opinion about the existence of thematic parks in their region.

3. Results and Discussion

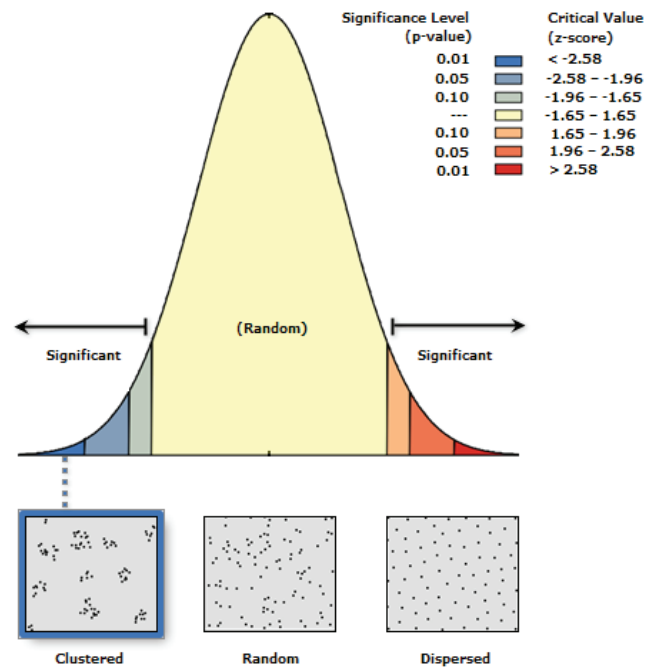
3.1. Distribution pattern of thematic parks in Bandung city

Within three years (2014 - 2017), City Government of Bandung has built 30 thematic parks. Location of thematic parks and wide area of Bandung City (167,585,120.48 m²) are the input for nearest neighbor analysis with GIS. The nearest neighbor analysis shows the value of Observed Mean Distance is 649.7869 m, Expected Mean Distance is 1181.7541 m and Nearest Neighbor Ratio is 0.549850. The ratio index value is less than one which means that the form of distribution pattern is a cluster. The Z-score (standard deviation) is -4,716819 and p-value (probability) is 0.000002, which means that the confidence level of analysis is 99% (see Figure 2).

Thematic parks in Bandung City form a cluster pattern or only focused on certain sub-city region (SWK) which is SWK Cibeunying. As many as 26 of 30 thematic parks were located in SWK Cibeunying, 2 of them were located in SWK Bojonegara, one park located in SWK Karees and one left located in SWK Ujungberung. The development of thematic parks is a revitalization of many old urban parks which mostly located in the downtown area. Those parks are remain of city planning in the Dutch colonial era which follows the principle garden city concept. The provision of city parks which focused on a particular area may indicate development gaps between the region in the City of Bandung.

3.2. Services coverage of thematic parks based on normative

Most of the thematic park in Bandung City categorized as hamlet scale park and none of them classified as city scale park (with area > 144.000 m², service radius 5 km). Analysis of park hierarchy based on normative (wide area and service radius) of thematic parks can be seen in Table 2. The analysis result of park hierarchy then mapped with the buffer on GIS. The buffer value for service radius divided into four scales which are the neighborhood scale park 100 m, hamlet scale park 1000 m, urban village scale park 1500 m and the sub-district scale park 2000 m (See Figure 3).



Average Nearest Neighbor Summary	
Observed Mean Distance:	649,7869 Meters
Expected Mean Distance:	1181,7541 Meters
Nearest Neighbor Ratio:	0,549850
z-score:	-4,716819
p-value:	0,000002

Figure 2: Nearest neighbor analysis results with GIS.

Buffer analysis shows that service range of thematic parks has not been evenly distributed in all areas of Bandung. The area which oversupply by thematic parks is SWK Cibeunying, while SWK Karees, SWK Bojonegara, SWK Tegalega, and SWK Ujungberung are underserved areas. The service range of thematic parks in SWK Cibeunying is overlapped each other. Areas that are not served by thematic parks are SWK Kordon, SWK Gedebage, and SWK Arcamanik. The service area of public space is closely related to spatial equality because basically, every society must have equality in reaching public facilities that can be measured by distance [18]. The imbalance of thematic park services coverage in Bandung can indicate spatial inequality. Communities who live in SWK Cibeunying and surrounding areas can access the park easily due to short distances and many choices of thematic parks, while people who live outside of thematic parks services area need more effort to access the park. As a result, in the regions which not

TABLE 2: Analysis of thematic park hierarchy based on normative (wide area and service coverage).

Park category	Service coverage (m)	Thematic Park
Neighbourhood Park (wide area >250 m ²)	100 m	Vanda Park (1,040 m ²), Gesit Park (556 m ²), Braga Park (250 m ²), Veteran Park (697 m ²), Pet Park (800 m ²), Superhero Park (600 m ²), Inklusi Park (400 m ²) Cibeunying Park (488 m ²).
Hamlet Park (wide area >1250 m ²)	1000 m	Pasupati Park (1,539 m ²), Ujung Berung Square(3,985 m ²), Photography Park (3,610 m ²) Music Park (2,100 m ²), Film Park (1,250 m ²), Pers Park (3,702 m ²), Tongkeng Park (3,610 m ²), Fitness Park (4,078 m ²), Dewi Sartika Park (4,757 m ²), History Park (1,568 m ²),Cikapundung Riverspot (2,284 m ²), Cikapayang Dago Park (1,658 m ²), Radio Park (2,177 m ²), Bahagia Park (4,923 m ²), Teras Cikapundung Park (6,993 m ²)
Urban Village Park (wide area >9000 m ²)	1500 m	Cicendo Square (9,000 m ²), Bandung Square (12,000 m ²), Balai Kota/Labirin Park (13,800 m ²), Kandaga Puspa Park (9,000 m ²),Elderly Park (15,450 m ²), Persib Park (11,195 m ²)
Sub-district Park (wide area >24000 m ²)	2000 m	Lalu Lintas Park (31,644 m ²)
City Park (wide area > 144.000 m ²)	5000 m	-

served by thematic parks appear many spontaneous public spaces to accommodate the city’s needs for public open spaces.

3.3. Services coverage of thematic parks based on user

3.3.1. Respondents characteristics

The characteristics of respondents in the study area tend to vary. The proportion balance of respondents gender is quite evenly, i.e., 48% of men and 52% of women. Respondents consisted of 183 people with the variation of age between 16-82 years, and most of them are graduated from senior high school. Respondents represent 29% of employees, 22% entrepreneurs, 15% of students, 12% pension and 23% others (see Table 3).

3.3.2. Park utilization

Residents within the services area of the thematic park should be able to enjoy the park because it located close to their region. Almost all respondents who are within the service area of Elderly Park (96%) and Film Park (100%) know the existence of the park in their region. Nevertheless, it does not arouse them to visit the park regularly. 17% of Elderly Park respondents and 24% of Film Park respondents never visited the

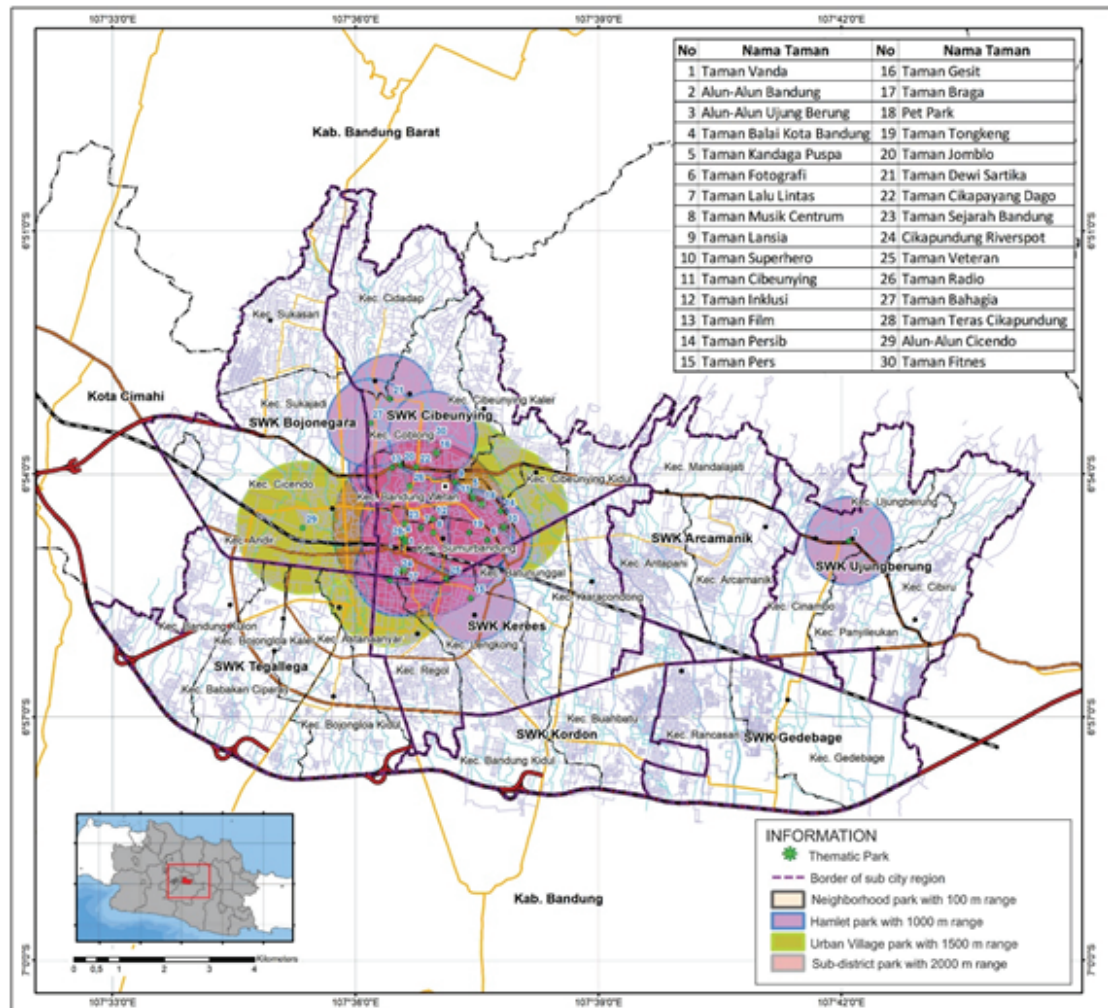


Figure 3: Service coverage analysis with the buffer on GIS.

thematic parks. The main reason not to visit thematic parks is that they are not attractive. The Elderly Park is usually filled with elderly visitors and identical with a monotonous atmosphere so that residents within the service range park with teenage and adult age categories are reluctant to visit the park. On the other side, Film Park is a park that is identical to youth, so that community with old age category feels that they not suitable to be in the park. In other words, adding a specific theme to the park can create visitor segmentation.

41% of respondents reach Elderly Park with a distance between 1 and 2 km, while 55% of respondents within Film Park reach it less than 1 km. This close distance makes most of the respondents reach the park on foot (59% of respondents within the coverage area of Elderly Park and 68% of respondents within the coverage area of Film Park). This finding is by green city principle which states that greenery in the form of a park should be easily reached on foot so that it can be enjoyed easily by all levels of society [6]. The distance of the respondent to reach the park can describe the service area of

TABLE 3: The characteristics of respondents in the study area (n=183).

Respondent Characteristic	Σ	%
Gender		
Man	88	48
Woman	95	52
Age		
Adolescent (11-25 years old)	51	29
Adult (26-45 years old)	63	35
Early Elderly (46-65 years old)	51	28
Elderly (>65 years old)	18	10
Occupation		
Employees	53	29
Entrepreneur	39	22
Student	27	15
Pensionary	22	12
Others	42	23
Education		
Not graduate in Elementary School	5	3
Graduated from elementary school	30	16
Graduated from junior high school	25	14
Graduated from senior high school	68	37
Graduated from college	55	30

each thematic park (See Figure 5). The service range of Elderly Parks and Film Park has not reached throughout the region, due to the land use change from residential to a commercial area.

The Central Place Theory by Christaller mentions that a service center and adjacent places will have overlapping areas [20]. People within the overlapping area will go to the closest central place to meet their needs. In the case study, the community within the overlapping area has closer access to Film Park than Elderly Park. But it turns out that communities are more interested in visiting the Elderly Park rather than Film Park. In other words, the proximity distance is not the only factor to access a service center but also attraction and conformity with the characteristics of the community.

3.3.3. Activity and intensity

The main activities undertaken in thematic parks are by its function. Elderly Park is for doing exercise while Film Park is for recreation or watch the movie together. It can be seen from 51% of respondents in Elderly Park doing exercise and 52% of respondents at Film Park doing recreational as main activities. Besides that, thematic

TABLE 4: Characteristics of thematic parks utilization in the study area.

Park Utilization	Elderly Park (n=103)		Film Park (n=69)	
	Σ	%	Σ	%
Awareness of the park existence				
Aware	119	96	91	100
Not aware	5	4	0	0
Visit the park?				
Yes	103	83	69	76
No	21	17	22	24
The reason for not visiting the park				
Too far	2	10	1	5
Difficult access	0	0	2	9
Not attractive	15	71	10	45
Others	4	19	9	41
Distance to park				
< 1 km	35	34	38	55
1-2 km	43	41	28	41
> 2 km	26	25	3	4
How to reach the park				
On foot	61	59	47	69
Using bicycle	2	1	2	3
Using motor vehicles	41	40	19	28

parks can also perform other activities that can support park function as public open space. For example, the community around the park can utilize the park for outdoor schools activities, gathering, reunions, etc. The diversity of these activities indicates that thematic parks are a public space that can be used by the wider community without being devoted to particular community activities.

The thematic parks have not been entirely attracted community within the service coverage area to use the park because they visited in uncertain times. It may happen because in the study area there are also found many other thematic parks located adjacent to each other, so people there have the option to visit other thematic parks. The emergence of new thematic parks in other areas also affects community visits, as people will tend to see new things compared to those already available in their environment. The duration of the community to visit Elderly Park and Film Park has a long period in more than 1 hour. The long duration can indicate that people feel comfortable doing activities in the park. The wide range of activities they can do in open spaces and also equipped with many facilities will make them feel comfortable so it can make them stay longer in the park.

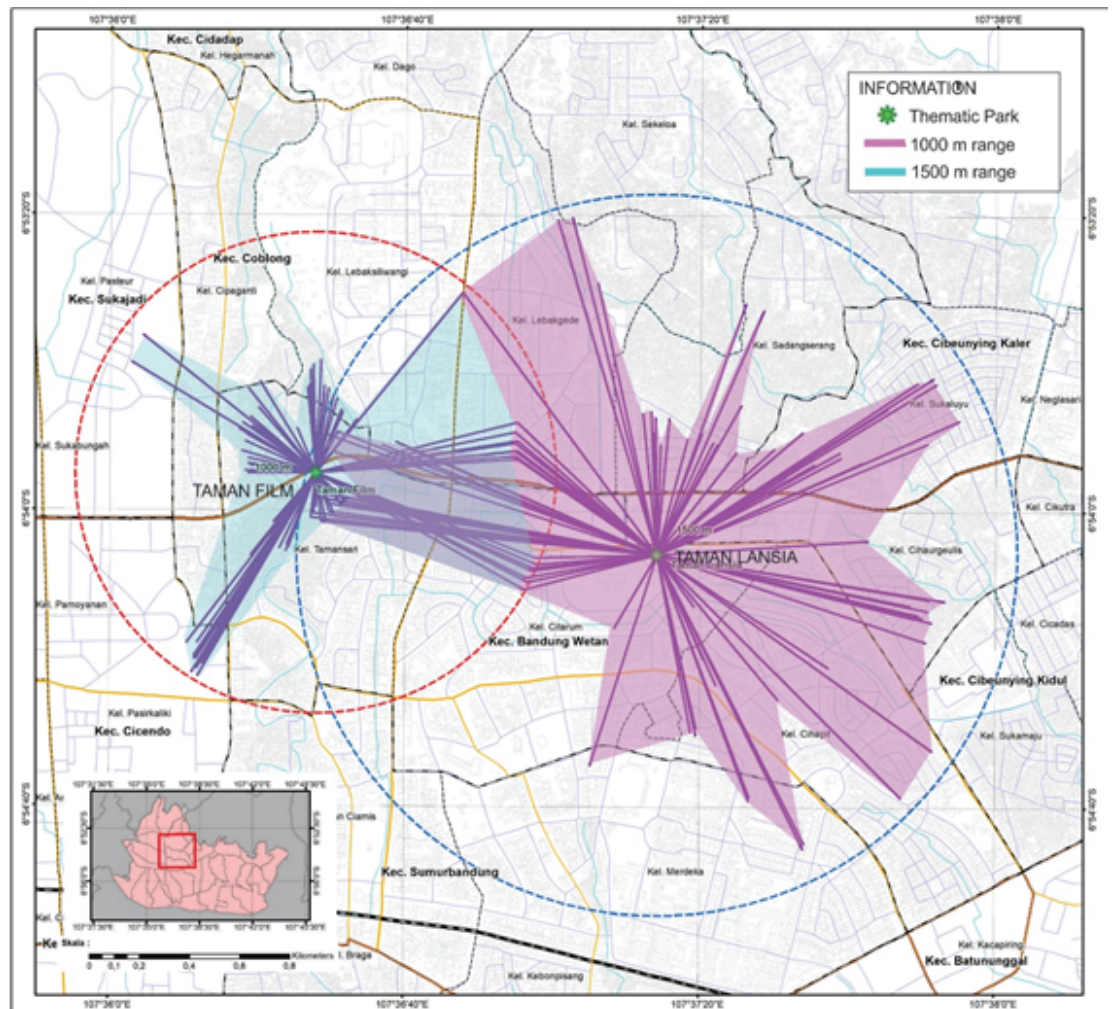


Figure 4: Service coverage analysis with Origin to Destination on GIS.

3.3.4. Community perception

The community who lives in thematic parks service range feel the existence of thematic parks in their surrounding is very beneficial. It can be seen from 87% of respondents within Elderly Park, and 88% of respondents within Film Park consider that the presence of thematic park in their region is very worthwhile. They need the availability of public open space that can be enjoyed for free and can be reached easily especially for children's activities.

Urban planners and policymakers should be able to see the park as a community need by taking into account the public preferences for determining the design of public space [21]. The theme of park determinate in a top-down way but still refers to the background of the area. The community's judgment on the suitability of park's theme with community characteristic can be seen from 69% of respondents in Elderly Parks area and Film Park who says that the theme of the park has been by the character of

TABLE 5: Activity and intensity of thematic park utilization in the study area.

ACTIVITY AND INTENSITY	Elderly Park (n=103)		Film Park (n=69)	
	Σ	%	Σ	%
Activity				
Recreation	24	24	36	52
Exercise	53	51	3	4
Gathered / Meet friends	18	17	21	30
Others	9	9	9	13
Intensity				
Everyday	7	7	3	4
Once a week	30	29	15	22
Once a month	19	19	19	28
Uncertain	47	45	32	46
Duration				
<30 minutes	22	22	3	4
30 minutes -1 hour	43	42	24	35
>1 hour	38	37	42	61

their environment. This is also supported by the fact that 76% of respondents in the Elderly Park service range have elderly members in their family and 86% of respondents within Film Park service range likes to watch movies or soccer games.

City Park nowadays not only as of the fulfillment of environmental function but also has the fulfillment of social roles. Therefore it needs to be done with the addition of artificial elements besides natural elements. The addition of artificial elements and convenient facilities can affect the satisfaction and comfort of visitors in doing activities in the park [5]. 33% of respondent think that facilities in Elderly Park are quite good. Most complaints about Elderly Park is about slippery and narrow path conditions, the minim of seating, dirty toilets, and wifi which not effective for the elderly. Besides, the number of street vendors who sell in the park can reduce the comfort and cleanliness of the park. 55% of respondents gave a bad rating to Film Park facilities because the big screen that became the main facility is frequently damaged, so there is no activity to watch together there. Other things are about lack of parking lot, unclean toilets and lack of safekeeping for children while playing. Movie schedule information is also poorly disseminated, so not all people know about the latest event at Film Park.

Most of the respondents' expectations of the thematic parks in Bandung is about the improvement of park maintenance. They argue that the parks that have been provided are quite good but less maintenance, especially in terms of cleanliness. Besides they also expect to create more thematic parks especially for areas that do not have open space. The main theme should also be universal so that all of the age categories can

enjoy the park. Improvement of park facilities, especially the parking lot and children's playground also become their main hope for the improvement of Bandung city park in the future.

4. Conclusion

The provision of thematic parks as a part of GOS in Bandung City formed a clustered pattern which still focused on certain region (SWK Cibeunying). Those can indicate spatial injustice and the development gap between regions in the city of Bandung. From normative sight, none of the thematic parks service area in Bandung meets the city scale category, therefore not all areas of Bandung served by thematic parks. SWK Cibeunying is oversupply by thematic parks, while SWK Kordon, SWK Gedebage, and SWK Arcamanik are areas that not served at all. Towards spatial equality, the development of thematic parks should be prioritized in areas which not been served by the thematic park. Residents within the service range feel the presence of thematic parks are very beneficial because it can be enjoyed for free, easy to reach and can accommodate various activities.

On the other hand, adding a specific theme to the park can create visitor segmentation. Proximity distance is not the main reason for the community to visit the park but also influenced by the park's attractiveness and the suitability of community characteristics with the theme of the park. Therefore to optimizing the utilization of GOS in the form of thematic parks, the theme of the park should be more general so that all categories can be suitable with the theme.

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