GREEN OPEN SPACE MANAGEMENT STRATEGY FOR RECREATION IN DKI JAKARTA

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ABSTRACT

Cities are dominated by two closely related aspects, namely the physical and human aspects. The physical aspect exists naturally in the form of space and its elements, while the human aspect is the subject of development as well as the user of its benefits. The city is part of human settlement, in its development, there is disintegrated planning because its development approach only sees the city as a physical object rather than a cultural object. The modern lifestyle requires the environmental atmosphere to be natural environmental atmosphere, which is valuable. The study was conducted to calculate the contribution of the environmental services aspects of Green Open Space (RTH) as a scientific basis in the policy strategy for managing Urban Parks (TK) and Urban Forest Parks (THK). Based on the results of this study, urban residents need UP and UFP as places for their recreational needs. The policy strategy is to create an appropriate GOS for recreational places. The engineering aspect of recreation sites in UP and UFP aims to optimize the recreational carrying capacity. The policy to overcome the problem improves ecological management through the enrichment and rejuvenation of old plants.

Key words: Environmental Services Aspect, Green Open Space, Urban Forest Park, Urban Park

INTRODUCTION

Cities are centers of economic growth that can trigger high urbanization (Smith & Lobo, 2019; Ortman et al., 2020). According to Baeza et al. (2018) nearly 50% of the human population lives in cities and it is estimated that by 2030 more than 60% of the world's population will live in cities (Eremia et al. 2017). This often causes physical development to be more dominant thereby narrowing Green Open Space (RTH), so that cities are synonymous with buildings that dominate urban elements (Irwan 2005; Abdillah 2006).

Urban infrastructure development has an important role in supporting the progress of the economic sector, but uncontrolled development will cause ecological functions to decline (Siregar 2009; Dahlan 1992). To maintain the balance of the city's ecosystem, it is necessary to build green open spaces (RTH) of at least 30% of the total urban area.

The DKI Jakarta area as a new metropolitan city has green open space in the form of urban forest parks, urban parks, interactive parks, and green belts of around 9.98% of its total area (DKI Jakarta Provincial Parks and Cemeteries Office 2017). One form of green open space in DKI Jakarta is Urban Parks (TK) and Urban Forest Parks (THK). This area functions as a ground surface location dominated by plants that are cultivated for the function of protecting certain habitats as well as facilities for the benefit of the city, the environment, security for infrastructure networks, and agricultural cultivation (PERDA No. 06 of 1999).

Green open space can produce a variety of environmental services such as lowering the environmental temperature, reducing/absorbing pollutant gases that can cause the greenhouse effect, reducing throughfall and stem flow (Lee et al. 2015; Hermawan et al. 2018), and creating beautiful and green environmental conditions. comfortable (Senik & Uzun, 2022; Jabbar, et al., 2021). In addition, City Green Open Space can be developed as a means of healing (Wang et al., 2019; Khotdee et al., 2021), and as a means of recreation for urban communities (Mersal, 2017). Related to recreation, Urban Parks (TK) and Urban Forest Parks (THK) as part of RTH are the biggest contributors to this service. TK and THK as recreational facilities should be able to provide satisfaction to visitors and the surrounding community. To produce optimal satisfaction with the environmental services generated from green open space, especially TK and THK, management strategies based on the perceptions of the community are needed. For this reason, the purpose of this study is to determine the level of satisfaction with environmental service aspects produced by green open space in DKI Jakarta, especially in the THK Honda-Tebet, TK Suropati, and THK Penjaringan, as well as formulating management

strategies to optimize the environmental services generated from RTH.

RESEARCH METHOD

The research was conducted in three areas of DKI Jakarta Province, namely the THK Honda-Tebet in South Jakarta, TK Suropati in Central Jakarta and THK Penjaringan in North Jakarta (Figure 1). The green open space for the city chosen is open access green open space representing three areas that have characteristics according to Ratcliff (1949); Berry (1963): namely well-established areas located in Central Jakarta, established areas located in South Jakarta and less established areas located in North Jakarta.

The research was carried out for 5 months which included: (a) a preliminary survey; (b) Field data collection was carried out for 2 (two) weeks from October 2018 to November 2018; and (c) data processing and analysis from November 2018 to January 2019.

Retrieval of field data in the form of data on the perceptions of respondents' satisfaction who visited the research locations (THK Honda-Tebet, TK Suropati, and THK Penjaringan) was carried out using a questionnaire on 2 types of visiting days, namely on weekdays (Monday to Friday). at) and on weekends (Saturday and Sunday). Respondents who were the target of the research were visitors and residents living around TK and THK who were selected using the Purposive Sampling method, namely by setting the criteria for

respondents> 25 years. The use of the purposive sampling method is intended to avoid bias and can provide more representative results.

The distribution of questionnaires for the three research locations was given to 690 people consisting of 600 visitors (200 respondents for each location where 100 respondents on weekdays and 100 respondents on weekends) and residents who live around green open spaces as many as 90 people (30 respondents for each location where 15 respondents on weekdays and 15 respondents on weekends).

The questionnaire used in this research is a type of questionnaire with closed-ended questions which are then processed and calculated by means of the One Score One Indicator Scoring System (OSOISS) which is a refinement of the Likert Scale from a score range of 1-5 expanded to a score of 1-7 with consideration of the character of Indonesian people who rarely choose extreme values (Avenzora, *et al.*, 2013). The perceived value of tourist satisfaction was analyzed using the Importance-Performance Analysis (IPA) method, which is a multi-attribute model, used to map the relationship between the interests and satisfaction of each attribute to analyze the level of satisfaction of respondents as a whole and can be used to analyze organizational performance (Martilla and James 1977). IPA aims to classify the perceived value of importance and satisfaction value (Yang, 2003). IPA consists of three stages, namely:
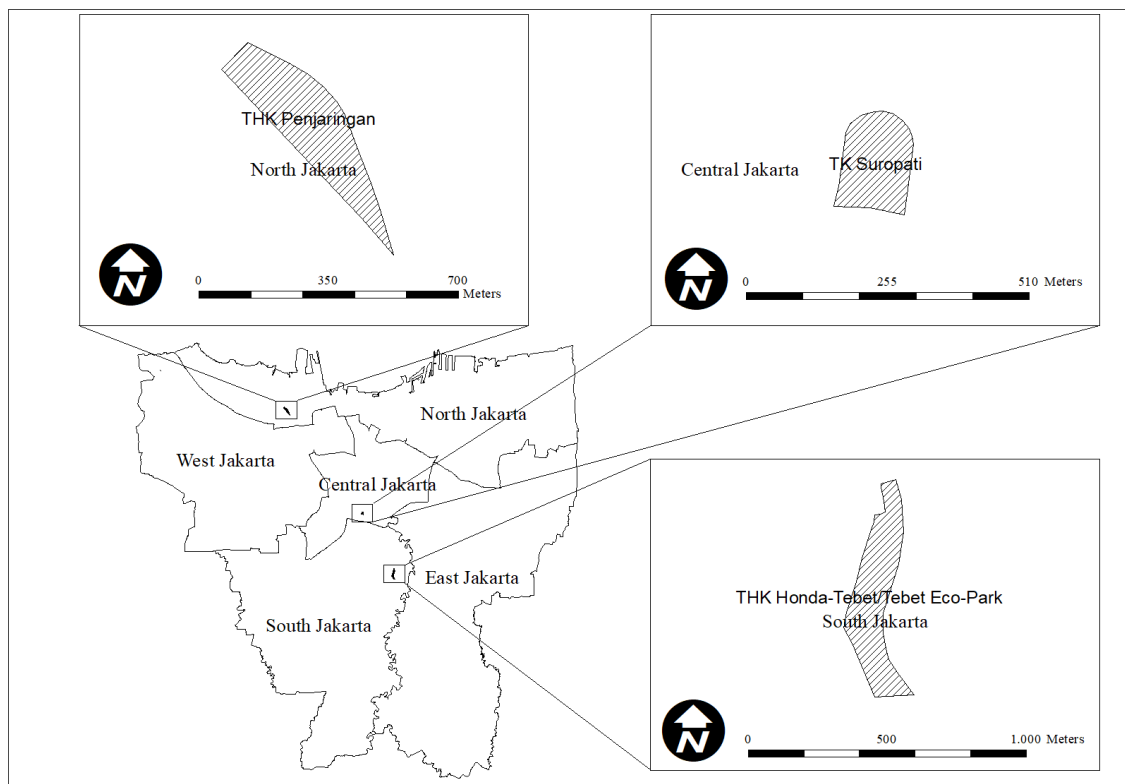

Figure 1. Research location

1. Calculating the average value of the importance and satisfaction of each attribute

$$\bar{X} = \frac{\sum Xi}{n} \qquad \bar{Y} = \frac{\sum Yi}{n}$$

Information:

$\bar{X}$: the average value of satisfaction assessment attribute X

$\bar{Y}$: the average value of the importance of attribute Y

n: number of respondents

2. Calculating the level of importance and satisfaction of all attributes

$$\overline{\overline{Xl}} = \frac{\sum_{i=1}^{n} \overline{Xi}}{k} \quad \text{and} \quad \overline{\overline{Yl}} = \frac{\sum_{i=1}^{n} \overline{Yi}}{k}$$

Information:

$\bar{X}$: average value of attribute satisfaction $\overset{-}{X}$

$\bar{Y}$: the average value of the importance of the attribute $\overset{-}{Y}$

k: the number of attributes studied.

3. Plugging $\bar{x}$ and $\bar{y}$ into the Cartesian Diagram (figure 2).

The Cartesian diagram consists of four quadrants: Quadrant 1 (maintain achievement) indicates that the attribute is considered important and has a high satisfaction value; quadrant 2 (top priority) contains attributes that are considered important but with a satisfaction value below expectations; quadrant 3 (low priority) contains attributes that are considered less important; and quadrant 4 (excessive) contains attributes that are thought to be less important but have high satisfaction values.

The DKI Jakarta, namely Jalan Teuku Umar, Jalan Diponegoro, and Jalan Imam Bonjol, in addition, the areas around this park are residential areas (domicile) for elite officials of the Regional Government of DKI Jakarta and the areas are also the Central Government of the Republic of Indonesia, so they have received a special designation as "the elite area of Ring - 1".

TK Suropati was built in 1920 by the Mayor of Batavia at that time, Bisschop (1916-1920), and was named Burgemeester Bisschopplein. From the data from the DKI Jakarta Regional Government Parks/Forestry Service (2015), TK Suropati has a total site area of 16,570.16 m2, of this total area there are Management Offices and Security Posts along with bathrooms (2 cubicles) covering 50 m2, grass areas (area of 9,153.09 m2, ornamental plants (not allowed to be stepped on) of 906.88 m2, and plaza/pavement area of 3,371.44 m2. TK Suropati is one of the green open spaces which is dominated by vegetation from the growth rate of trees with a total of approximately 308 trees which are dominated by Trembesi (*Samanea saman*) and Mahogany (*Swietenia mahagoni*). The condition of Suropati Park is shown in Figure 3.

THK Honda-Tebet

THK Honda-Tebet was the park chosen to represent the established location. This THK is located at Jalan Tebet Timur Raya No. 10, RT 10/RW 10, East Tebet, South Jakarta, DKI Jakarta, and was inaugurated in 2013 by Governor Fauzi Bowo. THK Honda-Tebet has a total area of 22,518 m^2, which is divided into a grass area of 7,385.60 m^2 (treatable), an ornamental plant area of 2,318.14 m^2 (not allowed to be stepped on), a plaza area of 2,035 m^2, 05 m^2, and the location for Manager's office, prayer room along with bathrooms and a 100 m^2 Security Post (DKI Parks/Forestry Service, Pemda DKI 2015).

The THK Honda-Tebet area is dominated by trees of the type of Trembesi (*Samanea saman*), Mahogany (*Swietenia mahagoni*), Leda (*Ekatalyptus deglupta*), Butterfly trees (*Bauhinia purpurea*), Khaya (*Khaya senegalensis*), Tanjung (*Mimusops elengi*), Mindi (*Melia azedarach*), Bungur (*Lagerstroemia*), Ketapang Kencana (*Terminalia mantaly*), Bodhi tree (*Ficus religiosa*), Flamboyant (*Delonix regia*), Kapok (*Ceiba petandra*), Island (*Alstonia scholaris*), and Tabebuya (*Handroanthus chrysotricus*). The condition of the THK Honda-Tebet/Tebet Eco Park is shown in Figure 4.

Figure 3. Condition of Suropati Park

THK Penjaringan

THK Penjaringan which is located in Penjaringan District, North Jakarta City was chosen as a research location that represents a less established location because the THK area is surrounded by a dense residential environment. THK Penjaringan, North Jakarta, has a total area of approximately 30,587.34 m², consisting of a grass area (which may be stepped on) of 28,209.92 m², a plaza area of 1,859.42 m², and a location for the Management Office, Security Post, pavilion, prayer room, and bathroom (4 cubicles) with an area of 118 m2 (Department of Parks / Forestry Pemda DKI 2015).

THK Penjaringan is right on the side of the Penjaringan toll road. This THK was formerly known as Kampung Kebon Pisang, which is now located within the area that is now THK Penjaringan. The THK which was built in stages from 2010 to 2012 was overgrown with vegetation and was dominated by trees with a total of 4,566 trees consisting of several species, namely Saga (*Peltophorum pterocarpum*), Leda (*Ekatalyptus deglupta*), Trembesi (*Samanea saman*), Mindi (*Melia azedarach*), Flamboyant (*Delonix regia*), Bay (*Syzygium polyanthum*), Walnut (*Juglans*), Spathodea (*Spathodea campanulata*), Buni (*Antidesma bunius*), Matoa (*Pometia pinnata*), Khaya (*Khaya senegalensis*), Mahogany (*Swietenia mahagoni*), Tanjung (*Mimusops elengi*), Sengon (*Albizia chinensis*), Glodokan (*Polyalthia longifolia*), and Waru (Hibiscus tiliaceus) (Wahyudi, 2021). The condition of THK Penjaringan is shown in Figure 5.

RESULT AND DISCUSSION

a. Assessment of the Level of Satisfaction and Interest in RTH Environmental Services (TK and THK)

DKI Jakarta as the national capital is a city with a high population density and is one of the cities that is experiencing very rapid development. This has resulted in the decreasing availability of green open space in Jakarta accompanied by a decrease in environmental quality. Currently, the DKI Jakarta area only has City Green Open Space in the form of urban forests, city parks, interactive environmental parks, and green belts of around 9.98% of the total area.

In relation to the social role of green open space (TK and THK), which is a place for social interaction, recreational facilities, and city landmarks, green open space in DKI Jakarta as a recreational facility should be able to provide satisfaction to visitors and the surrounding community. One aspect of satisfaction that can be assessed is to what extent TK and THK can produce environmental services, including reducing noise, breaking wind, maintaining air quality, providing shade, reducing the micro temperature, providing water absorption locations, and serving wildlife habitat. accordance with the expectations of visitors and the community around the area. Based on the results of an assessment of the level of satisfaction and interest by visitors and the public for environmental services produced by TK/THK in DKI Jakarta (TK Suropati, THK Honda-Tebet, and THK Penjaringan) as presented in Table 1 and Figure 6.

Figure 4. Conditions of THK Honda-Tebet/Tebet Eco Park

Figure 5. THK Penjaringan conditions

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Based on the data in Table 1, almost half of the environmental service indicators for THK Honda Tebet and TK Suropati have a satisfaction value close to a score of 5 or it can be said that the community is somewhat satisfied with environmental services from the existence of TK and THK because they almost meet their expectations, namely the environment is quite cool, quality the air is quite clean, the atmosphere becomes quite shady and the micro-temperature effect is quite good. As for THK Penjaringan, the average satisfaction score is still below a score of 4.5 (so-so) so it can be said that the community around THK Penjaringan has not felt the environmental services from THK's presence. Furthermore, related to the important value of the existence of green open space (TK and THK), based on the results of research on 3 green open spaces, the average community gives a value close to a score of 6 (important), which means that the community around green open space is aware of the importance of environmental services from the existence of green open space for their environment.

Table 1 IPA Quadrants Assessment of Satisfaction and Interest in Environmental Services Produced from TK and THK

No	Indicator	THK Honda-Tebet			TK Suropati			THK Penjaringan		
		Satisfy	Important	Quadrant	Satisfy	Important	Quadrant	Satisfy	Important	Quadrant
1	Noise reduction	4.42	5.31	4	4.78	5.29	4	4.53	5.54	3
2	Windbreaker	4.69	5.40	3	4.95	5.41	1	4.59	5.73	1
3	Air quality	4.84	5.62	1	5.03	5.40	1	4.44	5.54	3
4	Shade effect	4.92	5.58	1	5.01	5.47	1	4.43	5.64	2
5	Micro temperature effect	4.79	5.38	3	4.88	5.43	2	4.39	5.68	2
6	Water catchment location	4.89	5.55	1	4.86	5.41	2	4.59	5.65	1
7	Wildlife habitat	4.22	5.09	4	4.71	5.28	4	4.08	5.62	4
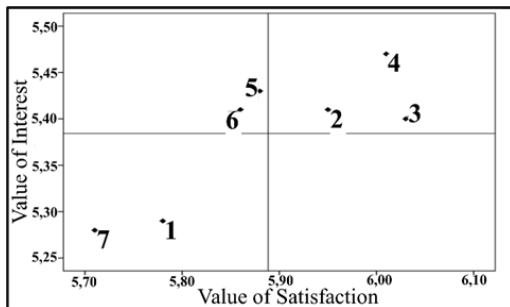
a)
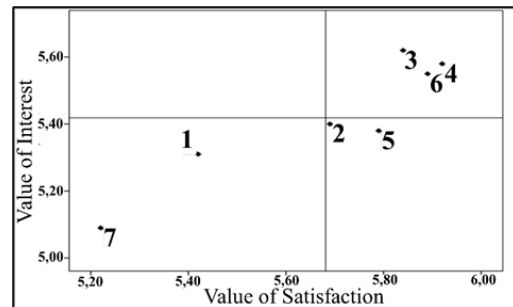
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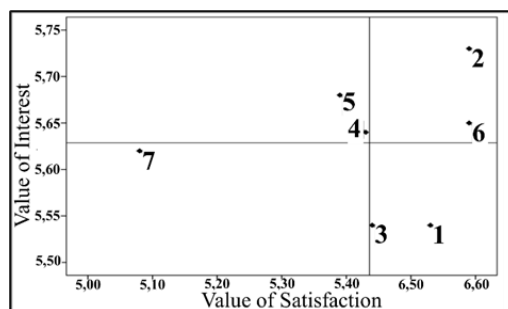
c)

Description: 1 = noise reduction; 2 = windbreaker/break; 3 = improvement in air quality; 4 = shading effect; 5 = effect of ambient temperature; 6 = location of water catchment; 7 = wildlife

Figure 6. IPA Quadrants Assessment of Satisfaction and Interest in Environmental Services at a) Suropati Park; b) THK Honda-Tebet/Tebet Eco Park; c) THK Screening

a. Quadrant 1 (Maintain Achievement)

From Figure 6 it can be seen that at THK Honda Tebet and TK Suropati, the environmental services produced, especially maintaining air quality and providing shade effects, have the same high satisfaction and importance values, namely in quadrant 1 (maintain achievement), meaning the attributes that are important and having a high satisfaction value must be maintained and improved in the management of both green open spaces. This is in accordance with what was revealed by Imansari and Khadiyanta (2015) that people prefer the function of public green space as a shade and maintain air quality (producing oxygen and absorbing pollutants) compared to other functions of public green space.

The location of green open space also plays a role in influencing people's perceptions of the satisfaction and interest in environmental services from the green open space itself. The existence of THK Honda-Tebet area which is located in an established area consisting of offices and low-density single-family housing areas; and the Suropati Park area which is located in the Menteng elite housing area as well as the residence of the ambassadors with all the well-established infrastructure and facilities (well-established areas) also influence people's perceptions of the environmental services produced by green open space, especially in maintaining air quality and providing a shaded effect (quadrant 1). This is supported by research conducted by Meiliana (2008) which examines the link between diversity and the success of parks (a case study of Menteng Park and Tebet Park) where the community around the park is the largest user of the park with optional social activities (occurring if there is a desire to do so and if the time and place allow) at certain times the function of green open space will be more felt in maintaining air quality and providing a shaded effect.

The function of green open space as a water catchment area at THK Honda-Tebet and as a windbreak at TK Suropati also has a high value of importance and satisfaction (Quadrant 1) so it must be maintained and improved in its management. The high value of the interest in and satisfaction with the environmental services of THK Honda-Tebet as a water catchment location is related to the physical condition of the area in which there is a stream that functions as a drainage and swamp (wetland) which acts as a retention pond. Likewise, the function of environmental services as a windbreak/break in Suropati Park needs to be maintained and increased because the community realizes that this green open space, it can protect settlements from turbulent winds caused by tall buildings around this area.

For THK Penjaringan, these attributes which are important and have high satisfaction scores must be maintained and improved in management (quadrant I), namely environmental services in windbreaking and water catchment areas. According to residents who live around the THK area, environmental services in holding/breaking winds need to be maintained because

they have proven effective in protecting residential areas from the wind. The area of North Jakarta based on its geographical location is in the area to the north of Jakarta and is directly adjacent to the sea, so it has the potential to be exposed to wind currents blowing from the sea to the mainland. Apart from functioning to hold/break the wind, THK Penjaringan also functions as a water catchment location. This is in accordance with research conducted by Wahyudi (2021) which says that THK Penjaringan has environmental services, especially in its ecological function as a water catchment area. This is because the THK Penjaringan area has trees that grow large and are well-maintained. This THK has 4,566 trees that have the potential to absorb rainwater. Water catchment locations can help store water during the dry season and can minimize flooding during the rainy season.

b. Quadrant 2 (Top Priority)

The value of satisfaction and interest in environmental services that are in quadrant 2 (top priority) is only found in TK Suropati Park and THK Penjaringan, while in THK Honda-Tebet, there are no attributes of environmental services that are a top priority (considered important but have value satisfaction below expectations).

In TK Suropati, environmental services from green open spaces in reducing the temperature of the local environment and as a water catchment area are top priorities. Communities around Suropati Park consider environmental service aspects in reducing the temperature of the local environment and as a water catchment area as a top priority because they are considered important even though they are unsatisfactory and still not as expected. This is inseparable from the physical condition of Suropati Park which is not so extensive (only has an area of approximately 1.6 Ha) and approximately 30% of the site surface is covered by pavement/paving blocks and is surrounded by roads, causing the ability of the soil to absorb rainwater/infiltration of rainwater into the ground to be low. In addition, this also affects the local environmental temperature. According to Putra (2011), although Suropati Park has shelter vegetation conditions with a wide canopy, based on the Laurie Standard (comfortable temperature for humans in the tropics 270C-280C) it is classified as uncomfortable because the average daily temperature is around 33.60C. Of the total area of 16,328 m2, Suropati Park has a canopy cover of 3,944.2 m2. To modify the air temperature to be comfortable, it is necessary to increase the tree canopy cover area by 2,200 m2.

For THK Penjaringan, environmental services are considered important but have a satisfaction value below expectations, so they need to be a top priority in area management, namely environmental services in providing shade and lowering the temperature of the surrounding environment. According to the local community, these two attributes need to be a top priority

because the physical conditions of the community's residential areas are dense and unorganized. The THK Penjaringan area, North Jakarta is categorized as a less established area that is still growing where most of the area consists of densely populated settlements with a settlement pattern in the form of row houses with relatively narrow sizes, close together and unorganized, causing almost every house to not have a separate yard. can be used to grow vegetation. This is exacerbated by the lack of green open space in urban forests, urban parks, environmental parks, interactive parks, and green belts, which has the effect of reducing shade and increasing the temperature of the surrounding environment. According to Griffits (1976) in Munandar (2010) a dense vegetation canopy will hold back or even reduce the effects of increased solar radiation and hold down the minimum temperature drop at night. In summer, the temperature under vegetation stands will be lower than in open areas, because the tree canopy can absorb most of the solar radiation.

c. Quadrant 3 (Low Priority)

In quadrant 3, green open space environmental services as wildlife habitat are an attribute that is considered less important by the community at the three research locations (TK Suropati Park, THK Honda-Tebet, and THK Penjaringan). This is due to the fact that in these three RTH, it is very rare to find wild animals, especially from the class of mammals. Only animals from the aves class that are often found, namely from the Passeridae family in the form of Passer montanus (*Erasia sparrow*) and the Pycnotidae family, namely *Pycnonotus aurigaster* (Finch bird) in a very small number of individuals.

In addition to green open space environmental services such as wildlife habitat, environmental services in reducing noise at TK Suropati and THK Honda-Tebet are also attributes that are considered by the community to be less important because people do not feel disturbed by noise, especially those originating from motorized vehicles. This is related to the physical condition of the two areas which are included in the category of Well Established Area (TK Suropati) and developing area/Established Area (THK Honda-Tebet) where the settlement pattern in these two areas has a residential pattern. with single-family housing types (detached/dated houses and row houses) and multi-family housing in the form of clusters. Even though there are houses that are attached to each other, especially in the pattern of row houses and clusters, yards are still found in almost every house with a variety of locations, both on the front and sides, as well as on the inside and back of the house. The provision of green open space on private land such as courtyards or building yards has the potential to provide benefits for the settlement itself in reducing noise. In addition, this housing/settlement model has access roads in the form of residential roads which are intended only for residents so that it will indirectly limit the number of vehicles, and the potential for noise, especially from vehicles, can be minimized.

d. Quadrant 4 (Excessive)

In quadrant 4, environmental services that are estimated to be less important but have a high satisfaction value are reducing the temperature of the surrounding environment and holding/breaking the wind (THK Honda-Tebet), as well as improving air quality and reducing noise (THK Penjaringan). Communities around THK Honda-Tebet consider environmental services in lowering the environmental temperature and holding/breaking wind to be less important because the community considers the ambient temperature and airflow in the environment where they live so far to be comfortable enough. The settlement pattern with the type of single-family housing (detached/dated house or row house/row house) and multi-family housing in the form of clusters allows for each house to still have a yard/yard either on the front, side or in the inside and back of the house. provide green open space on private land. With the availability of yards/yards planted with various vegetation in each house, air flow/circulation can flow which has implications for lowering the temperature in the home environment. The function possessed by the yard is closely related to its constituent elements. Elements contained in a site will create the character of that site. The ecological function is realized from the role of vegetation in engineering the microclimate around the yard.

Furthermore, at THK Penjaringan, environmental services in improving air quality and reducing noise are considered by the community around the green open space to be less important. This is because the Penjaringan area is an area that is passed by the toll road towards the airport which is always busy with private vehicles and buses and the toll road towards the port which is always busy with container trucks which causes poor air quality and high noise levels. This condition is exacerbated by the many factories and settlements that are densely populated with a settlement pattern in the form of row houses with relatively narrow sizes, close together and unorganized, causing almost every house to have no yard to plant various vegetation that can reduce pollutants from vehicles and factory smoke and muffle noise. Based on this, the community considers the existence of THK Penjaringan to be less important because it has not been able/not optimal in improving air quality and reducing noise. Even so, the community around green open space knows/is aware that one of the functions of green open space is to improve air quality and reduce noise.

2. Revitalization of Green Open Space as Recreation Areas

From the distribution of the IPA quadrants of the assessment of satisfaction and interest in environmental services in the three green open spaces, it is necessary to revitalize green open space areas (TK and THK) to

support recreational activities, especially in terms of environmental service aspects which are in quadrants 3 and 4. Green open space environmental services in reducing noise and as a habitat for wild animals are functions that must be revitalized in the management of the 3 green open spaces. This is supported by research conducted by Mahardi (2013) and Asgitami (2017) which found that the existence of green open space in the province of DKI Jakarta has not shown optimal environmental services, especially from an ecological aspect, namely as a habitat for wildlife and reducing sound.

Engineering/revitalization efforts to increase and optimize the function of environmental services in reducing noise and as a habitat for wild animals which so far provide low satisfaction and are not considered important by visitors and the community residing/living around green open space can be added supporting elements, especially on ecological aspects.

According to Hakim in Hendra and Rizki (2010), vegetation in green open spaces has a very important role in visual control, physical barriers, and climate control. Good green open space quality must optimally fulfill these vegetation functions. Based on this, efforts to engineer/revitalize the ecological aspects of the three RTH (TK and THK), especially in reducing noise and as wildlife habitats, can be carried out by enrichment planting, especially vegetation whose function is to muffle sound and at the same time be able to serve as a habitat and animal feed, as well as rejuvenation of existing plants. From Pratama *et al.*, (2021) research conducted in 3 DKI Jakarta city parks (Ayodya Park, Menteng Park, and Cattleya Park) it was found that vegetation in each park can reduce 13-18% of the votes coming from outside the park which is good enough, although actually, the vegetation in the park has a greater ability to reduce noise coming from outside. According to Carpenter *et al*. in Pratama *et.al* (2018) plant vegetation can reduce noise by 25-80% depending on the height, width, composition of plant species, and distance from the sound source. Vegetation's ability to reduce noise can be maximized by planting various plant species at various strata, such as planting trees, shrubs, and shrubs in one location. This is in accordance with Putra's research, *et al*. (2018) who found that canopy cover had an insignificant role in reducing noise where there were other factors such as undergrowth, stem diameter, and vegetation density. The combination of planting vegetation such as ground cover plants, shrubs, and trees, will create various strata that make vegetation a more optimum barrier effect (Resiana, 2014)

Planting various plant species in various strata/strats consisting of trees, grasses, shrubs, shrubs, lianas, and epiphytes; besides being able to reduce/muffle noise, it can also be an ideal habitat for animals to breed, rest and find food. With a multi-layered and stratified urban forest structure both vertically and horizontally that mimics natural forests, it is hoped that urban forests can become: 1) habitat for animals in search of food because of the availability of vegetation that can be used as food; 2) Habitat for animals to rest because of the availability of vegetation which can be used as a safe hiding place from disturbances; and 3) Habitat for breeding animals due to the availability of vegetation which can be used as a place to lay nests. With the addition/input of the ecological aspect as described above, it is hoped that it will be able to increase the resilience of the location to visitor pressure so that it is more resistant when the number of visitors is approaching the threshold of the area's recreational carrying capacity.

CONCLUSION

In THK Honda Tebet and TK Suropati locations, most of the environmental service aspect indicators are in Quadrant 1 (the values of satisfaction and interest are equally high), while in THK Penjaringan the distribution is even in each quadrant. In general, the environmental services aspects of TK and THK in DKI Jakarta have a high value of importance and satisfaction. With dense and shady vegetation conditions, it can provide an ecological function as an environmental service for the local community and visitors. This can be used as a scientific basis in directing policy strategies, namely by making suitable green open spaces as public spaces for recreational locations. The implementation of recreational site engineering aspects in TK and THK is an effort to optimize the carrying capacity of recreation. Policies that can be implemented are implementing ecological inputs through enrichment planting, and rejuvenating old plants.

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