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STUDY OF POTENTIAL LOCATIONS OF GREEN OPEN SPACE BASED ON PROCUREMENT CONVENIENCE IN WEST JAKARTA

Abstrak

Pengadaan Lahan Ruang Terbuka Hijau (RTH) Publik di Provinsi DKI Jakarta dilakukan oleh Dinas Kehutanan DKI Jakarta berdasarkan status lahan BPN. Pengadaan lahan RTH bersifat pasif berdasarkan pengajuan dari masyarakat. Berdasarkan data Dinas Kehutanan DKI Jakarta, saat ini RTH publik Jakarta Barat baru memenuhi 8,8%. Penelitian ini bertujuan membantu pemangku kepentingan dalam pengadaan lahan RTH ditinjau dari aspek kemudahaan dalam pengadaan. Aspek kemudahan disusun dari parameter penggunaan lahan, status lahan BPN, zonasi pola ruang, SIPPT, RTH Aset dan lahan baku sawah. Hasil analisis menunjukan bahwa daerah yang termasuk zonasi hijau di Jakarta Barat banyak yang beralih fungi lahan menjadi lahan terbangun sehingga menyulitkan pemda dalam pengadaan lahan. Melalui penelitian ini maka ditemukan lahan-lahan alternatif dengan kondisi penggunaan lahan eksisting non terbangun dan status lahan yang jelas serta zonasi pola ruang yang potensial untuk dijadikan target pengadaan lahan RTH. Hasil analisis menunjukan bahwa dari 4071 persil tanah terdapat 784 persil yang sangat potensial dengan luasan 179 Ha. Untuk lahan potensial terdapat 3234 persil tanah dengan luas 301 Ha dan 53 persil tanah yang masuk kelas normal dengan luas 2,4 Ha. Lahan yang sangat potensial dapat dijadikan prioritas pengadaan bagi pemda terkait dalam pengadaan lahan RTH ditinjau dari aspek kemudahaan dalam pengadaan.

Kata kunci: *Ruang Terbuka Hijau, SIG, Potensial RTH*

Abstract

The Procurement of Public Green Open Space (RTH) in DKI Jakarta Province is carried out by the DKI Jakarta Forestry Service based on the land status of the BPN. Procurement of green open space is passive based on requests from the community. Based on data from the DKI Jakarta Forestry Service, West Jakarta's public green open space has only fulfilled 8.8%. This study aims to assist stakeholders in the procurement of green open space in terms of ease of procurement. The ease aspect is compiled from land use parameters, BPN land status, spatial pattern zoning, SIPPT, RTH Assets and raw rice fields. The results of the analysis show that many areas that are included in the green zoning in West Jakarta have turned the function of land into built-up land, making it difficult for the local government to acquire land. Through this research, alternative lands were found with existing non-built land use conditions and clear land status as well as potential spatial pattern zoning to be targeted as green open space land acquisition targets. The results of the analysis show that from 4071 plots of land, there are 784 plots of land that are very potential with an area of 179 ha. For potential land, there are 3234 plots of land with an area of 301 Ha and 53 plots of land that are classified as normal with an area of 2.4 Ha. Land with great potential can be used as a procurement priority for the relevant local government in the procurement of green open space in terms of the ease of procurement aspect.

Key words: *abstract, italic, maximum five words, template*

INTRODUCTION

West Jakarta is part of the provincial capital which has a function as the center of government and the economy so as to encourage the rapid development of built-up land in the form of residential and non-residential which results in the conversion of green open space land to non-green (Karunia & Ikhwali, 2021; Nagasawa et al., 2015; Pangaribowo, 2018; Putri, Ratih

Fitria et al., 2019). Based on Law no. 26 of 2007 concerning Spatial Planning, the plan for the provision and utilization of green open space is one of the contents in the spatial planning of the city area which consists of public green open space with a proportion of 20% of the city area.

The reduction in green areas is a threat because Jakarta, which is a metropolitan area, has an overload, lack of clean water, the threat of flooding, low air quality and limited land (Edwinsyah & Lutfi, 2021; Rifai et al., 2018; Samsuhadi, 2018; Study & Sudirman, 2020). The limitations of green open space have environmental and social implications such as the absence of places for early childhood and adolescents to play activities, and increasingly limited space for social interaction (Enssle & Kabisch, 2020; Rasidi et al., 2018). According to (Kruizse et al., 2019) The increase in the density of a city often results in the displacement or degradation of green open spaces. Over time, not only the quality has decreased but also the quantity (Setiowati et al., 2018). The existence of a green open space has a significant influence on the air quality in a city. (Maulidia, 2018; Ramdhoni et al., 2016) The condition of green open space is directly proportional to the air quality.

The use of green open space is not only for improving air quality and the environment but can also be used as an evacuation room for natural disasters (Matos et al., 2019; Nath et al., 2018). According to (Rashifah et al., 2019), green open space can be used as earthquake evacuation room with types of green open space such as rice fields, sports fields, and open areas. Green open space as part of the urban ecosystem plays an important role on the environment, economy and social (Mensah, 2014). For this reason, the DKI Jakarta Provincial Government needs a land acquisition strategy for green open space to meet the needs of the community.

Table 1. Area of RTH Assets in West Jakarta

Kecamatan	Tipologi RTH / Luas (Ha)					
	(H1)	(H2)	(H3)	(H4)	(H7)	Total
Cengkareng	13,24	16,12	1,42	10,73	15,56	57,06
Grogol Petamburan	0	9,74	0	11,86	0,14	21,73
Kalideres	0	14,98	74,16	3,34	1,76	94,24
Kebon Jeruk	0	6,24	5,34	5,17	1,09	17,84
Kembangan	16,08	14,63	10,61	10,09	7,83	59,25
Palmerah	0	6,64	2,18	5,82	0,04	14,69
Tamansari	0	2,43	0	2,65	2,4	7,49
Tambora	0	0,84	0	3,73	0,59	5,15
TOTAL	**29,31**	**71,64**	**93,71**	**53,39**	**29,4**	**277,45**

Source: DKI Jakarta Forestry Service, 2020

There have been many studies that have examined the suitability of land or land that has the potential to be used as green open space (Abebe & Megento, 2017; Babalola, 2018; Tahmasebi et al., 2014; Widyawati et al., 2020), these publications only provide potential physical land without considering the legality and ease of land acquisition. In this study, an approach related to these matters was adopted so that the results of land that have the potential to be used as green open space become more specific and detailed.

RESEARCH METHODS
1. Research Location

The research location is in the National Capital, especially in the City of West Jakarta. West Jakarta Administrative City is one of 6 regencies/cities in the DKI Jakarta Province. Geographically, West Jakarta is located between 5°19'12'' - 6°23'54'' South Latitude dan 106°22'42'' - 106°58'18'' East Longitude.
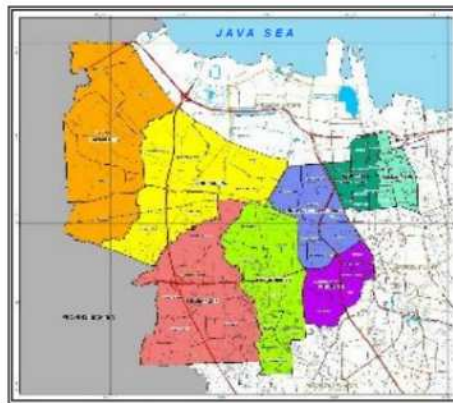

Figure 1. Location of the Research Area.

West Jakarta has an area of 125.43 km2, which is divided into 8 sub-districts, 56

urban villages and 586 RW. The current condition of RTH assets covering an area of 277.45 ha only fulfills 11.03% of the need for green open space.

2. RTH Parameters Based on Ease
2.1. Potential Land Use

Land use is an important factor in determining the provision of green open space at a location. Land use will affect the level of convenience and also the budgeting factor for the procurement of green open space. Locations that have built-up land use will of course have a higher cost and a higher level of difficulty related to purchasing land because it has been utilized. Therefore the determined land is divided into three (3) classes, namely very potential, potential and normal.

Table 2. Classification of Potential Land Use

No	Information
1	Other Green
2	Horticulture
3	Pool
4	Empty land
5	Sports field
6	Nursery
7	Sales of Plants and Flowers
8	Swamp
9	Ricefield
10	Moor/Field

Source: Analysis Results, 2021

2.2. RDTR Space Pattern

The development of green open space is strongly influenced by the spatial pattern plan contained in the RDTR and its designation is divided into protection and cultivation functions. Land that is in the green zoning will be easier to buy because it is in accordance with the green space designation, because land that is in the green zoning pattern will not be able to get out of the IMB. For non-green land, it has the potential to be used as green open space but with several challenges such as more expensive land prices, people's willingness to buy their land, land legality.

The blue open space zoning is the last priority because the blue open space zoning has its own priority in procuring blue open space which is useful for absorption, reservoir and water control. The following is the classification of spatial patterns in terms of the priority of convenience in the procurement of green open space:

Table 3. Zoning Classification of Spatial Patterns

No	Keterangan	Kriteria
1	Green Zoning	Very Potential
2	Non-Green Zoning	Potential
3	Blue Open Zoning	Normal

Source: Analysis Results, 2021

2.3. SIPPT dan RTH Assets

The analysis of SIPPT (Land Use Designation Permit) and Asset RTH is very necessary so that the land that has the potential to be used as green open space is not land that has become an asset so that it does not cause conflict to the procurement process. For RTH assets and SIPPT used belong to the local government and have not added asset data from the central government. In addition, based on research (Pantalone, 2010; Ustaoglu & Aydınoglu, 2020) the area that is farthest from the existing park really needs green open space because the area does not have green open space or vegetation so that the further away from RTH Assets, the more potential it will have.

2.4. Rice Fields

Even though West Jakarta is a metropolitan urban area, there are still locations that become Baku Sawah land based on 2019 ATR/BPN data. The area of raw rice fields in West Jakarta is 414 Ha . The land may not be converted because it has been stipulated in the regulations. This parameter is a factor that will be used to eliminate potential lands based on the previous parameter analysis.

2.5. Status Lahan Persil Tanah BPN

The status of BPN land parcels is an important factor in determining the potential for green open space. The forestry service uses this parameter to determine whether a land will be purchased or not for land acquisition. The status of the land used for land acquisition is the land status of SHM, HGB and HP. Lands that do not have land status or have problematic land status will be eliminated because later it will be difficult to acquire land.

The modeling of potential green open space is composed of 5 main parameters, namely: land use, spatial pattern of RDTR, status of land parcels, SIPPT and green open space assets and raw rice fields. The modeling results will be classified into 3 (three) classes, namely very potential, potential and normal.

The following is an image of the research flow chart in determining the Potential Green Plan.
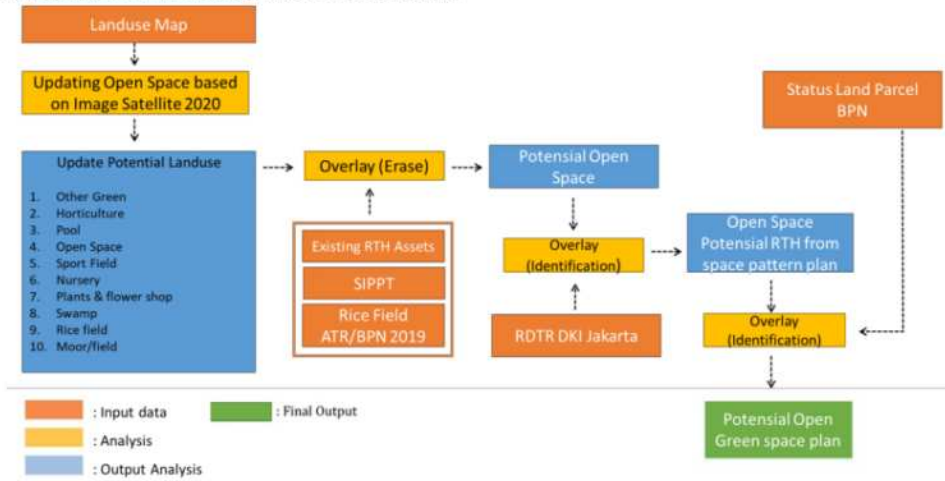
2. Potensial RTH Berdasarkan Kemudahan

Figure 1. Flowchart of Determining the Potential Green Plan
Source: Analysis Results, 2021

RESULTS AND DISCUSSION
1. Potential Land Use Analysis

Based on the processing results, there are 11 land use classes that have the potential to be used as green open space with the following areas:

Table 4. Potential Land Use Area

No	Classification	Area (Ha)
1	Other Green	446,62
2	Horticulture	160,19
3	Pool	111,49
4	Empty land	614,96
5	Sports field	1,79
6	Nursery	3,14
7	Plants and Flowers shop	1,94
8	Swamp	1,37
9	Ricefield	0,251
10	Moor/Field	111,61

Source: Analysis Results, 2021

The potential land use in West Jakarta is 14.06 km^2 or 11.2% of the total area of West Jakarta. It can be seen that almost 90% of the land in West Jakarta is built up land so that it is very necessary to use green open space optimally to improve the quality of the environment and the quality of life of its people. The following is a map of the distribution of potential land use in West Jakarta.
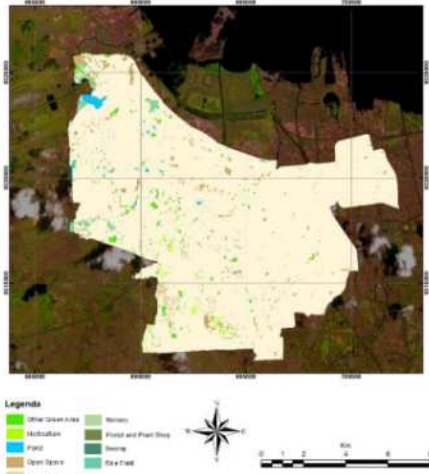
JURNAL geografi

Figure 2. Distribution of Potential Land Use
Source: DKI DCKTRP, 2021

The results of the distribution show that the area that has the greatest potential for the procurement of green open space in terms of land use is in Kalideres District

2. Spatial Pattern Analysis

Based on the spatial pattern analysis, there are four main classes related to zoning, namely, Green Zoning, Non-Green Zoning, Blue Open Space Zoning and Road Plans.

Table 5. Zoning Grouping of RDTR Ruang Spatial Patterns

Green Zoning	Non-Green Zoning	Blue Open Space Zoning
urban forest zone; cit y/envir onmenta l parks; b urial; gr een line; recr eational green;	National government zones; local government ; representatives of foreign countries; village housing ; medium-high KDB housing; vertical housing; low KDB housing; low KDB vertical housing; offices, trade, and services; offices, trade, and low KDB services; mixture; public and social services; industry and warehousing; and	blue open zone.

Source : DCKTRP, 2021

For green zoning land that has been utilized as built-up land, it has exceeded 80% and only ± 20% remains. This is of course very worrying apart from a policy from the local government that will not carry out evictions, but conditions like this will certainly make the quantity of green zoning decrease if it is not immediately followed up to be utilized according to its utilization.

Based on the spatial pattern plan prepared by the DKI Provincial Government, it can be seen that the Kalideres sub-district is plotted to become an environmental buffer zone with the most green zoning compared to other sub-districts.

Figure 3. Zoning of Spatial Patterns
Source: DKI DCKTRP, 2021

Looking at the condition of the *Air Quality Index* issued by IQAIR on April 23, 2021, it shows that the average AQI value of West Jakarta ranges from 125 - 165 which based on the classification is included in the unhealthy class for sensitive to unhealthy groups. The grouping of green zoning in the Banten border area will be difficult to improve and improve air quality in the central part of West Jakarta as it approaches the center so that there is a need for an even distribution in the provision of green open space.

3. Analysis of RTH and SIPPT Assets

The analysis of RTH and SIPPT assets is intended so that the potential land obtained does not overlap with the RTH and SIPPT assets owned by local governments. The results of the inventory and data analysis of green open space assets obtained from the forestry service were 277.5 ha, while for SIPPT it was 5213, 5 ha.
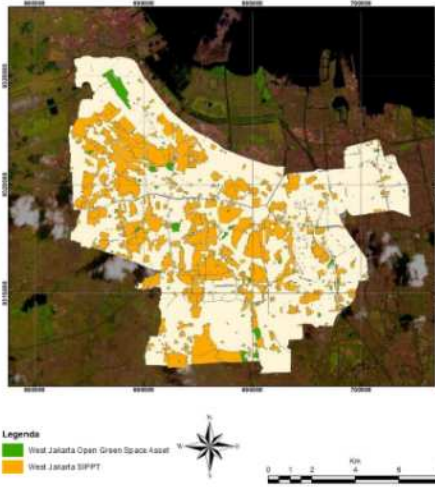
Table 6. Areas without BPN parcels

No	Districts	Area District (km²)	Area Without Pesil (km²)	Percentage to Region
1	Tambora	5.41	2.27	41.96
2	Kembangan	24.97	8.30	33.24
3	Kalideres	29.03	8.10	27.90
4	Cengkareng	25.66	7.70	30.01
5	Grogol Petamburan	10.83	2.98	27.52
6	Kebon Jeruk	17.65	6.07	34.39
7	Taman Sari	4.50	1.02	22.67
8	Palmerah	7.37	2.04	27.68
	TOTAL	125.42	38.48	30.48

Source: Analysis results, 2021

Figure 4. RTH Distribution and SIPPT assets
Source: Analysis Results, 2021

3. Status of land parcels

The status of land rights is an important part for the provincial government of DKI Jakarta in land acquisition for green open spaces. Purchase of land for land status whose validity has not been verified can lead to conflicts and risks in the future. In this case, land parcel data from the National Land Agency (BPN) is the reference used in this activity to make land purchases that can be accounted for and minimize conflicts.

The results of a review of BPN's 2019 parcel data in the West Jakarta area identified 319,689 parcels of land. Furthermore, if viewed from the availability of parcels to the total area of West Jakarta, it is known that there are 38.48 hectares or 30.48% of the West Jakarta area that does not have data on land parcels.

For the area of parcels with land ownership rights, namely 243.47 Ha, for Building Use Rights covering an area of 216.8 Ha and Use Rights with an area of 21.8 Ha
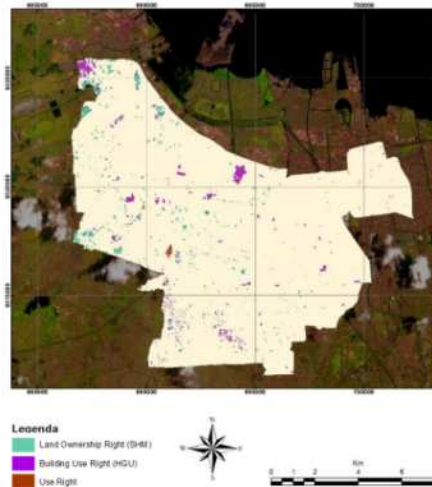

Figure 5. Status Parcel Distribution at West Jakarta
Source: Analysis Results, 2021

4. Potential green space based on convenience

The results of the overlay analysis of the six parameters resulted in a potential green space with a total of 4070 parcels with an area of 467.38 ha. Based on the analysis from the aspect of convenience, the very potential land has a percentage of 19.26%, for the potential class it is 79.45% and the rest is in the normal class of 1%. The potential land in the normal class is quite large but is experiencing shrinkage due to

the unavailability of land parcels so that only 1% is left.

When viewed from the distribution of locations that have a very potential class in terms of convenience, they are located in the Kalideres sub-district. The potential land location on the border of West Jakarta with Tangerang Banten is a solution for local governments to increase the quantity of public green open space in West Jakarta. An increase in the quantity of green open space will be more optimal if it is located in locations that need not only grouped at one location so that the need for green open space can be met evenly.
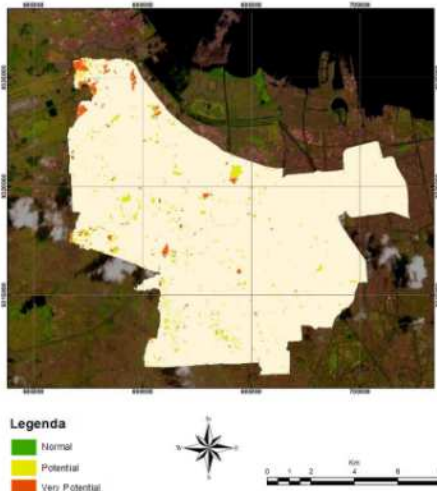

Figure 6. Potential Green Open Space Distribution
Source: Analysis Results, 2021

CONCLUSION

Based on the spatial analysis based on geographic information systems, it can be concluded that the modeling of potential green open space land based on convenience can be generated. This analysis looks at the potential of green open space based on land use data, spatial patterns, RTH Assets, SIPPT, raw rice fields and BPN land parcels. Based on the results of the analysis, it was found that the number of potential parcels was 4070 plots with an area of 467.38 hectares. Through this modeling, it is hoped that it can assist local

governments in determining the land to be procured or purchased to increase the quantity of green open space in West Jakarta in order to improve the quality of the environment and the quality of life of the community.

Acknowledge

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