Journal of Social Research

P-ISSN: 2827-9832
E-ISSN: 2828-335x
Vol.4, No.12, November 2025
http://ijsr.internationaljournallabs.com/index.php/ijsr

Strategy For Fulfilling Public Green Open Space in South Tangerang City

Muhammad Arief Rakhman*, Janthy Trilusianthy Hidayat, Umar Mansyur
Universitas Pakuan, Indonesia
Email: muhammad.arief91@gmail.com*

ABSTRACT

As a fast-growing buffer area for Jakarta, South Tangerang City faces challenges in meeting the need for adequate public green open space (RTH). The gap between the RTH target of 20% based on RTRW and the existing condition of only 5.23% results in a decrease in environmental quality characterized by annual flooding and air pollution. This study aims to: (1) analyze the adequacy and suitability of existing public RTH locations with RTRW, (2) identify land potential for public RTH expansion, and (3) formulate strategies for fulfilling public RTH to reach 20% of the urban area. The research uses a mixed approach through remote sensing image interpretation, GIS-based spatial analysis with the Weighted Sum Overlay technique, Analytic Hierarchy Process (AHP) for land prioritization, and SWOT analysis for strategy formulation. The findings of the study show that the existing public RTH only covers 863 hectares (5.23%) of the target 3,297 hectares, with a gap of 2,434 hectares. Land potential of 2,539 hectares (15.40%) was identified, which could increase the total public RTH to 3,402 hectares (20.64%). The strategy analysis recommends a defensive approach with three priority strategies: RTRW revision, green infrastructure regulation, and the development of green economy programs. South Tangerang City has adequate potential to meet the target of 20% public RTH through potential land optimization and the implementation of an integrated defensive strategy. The findings of this study make a practical contribution to local governments in formulating sustainable spatial planning policies, as well as serving as a model for other urban areas that face similar challenges in fulfilling public RTH

Keywords: *Analytic Hierarchy Process; SWOT; Environment; Public Policy.*

INTRODUCTION

South Tangerang City, a buffer zone for Jakarta, is experiencing rapid growth. With its growing population, the need for spaces for social interaction, sports, and recreation is also increasing, ensuring its residents remain physically and mentally healthy (Putra, 2017; Rigolon, Browning, Lee, & Shin, 2018; Wicaksono, Dharmowijoyo, Tanjung, & Susilo, 2023). Furthermore, South Tangerang City's environmental quality is declining. By 2023, it was ranked among the cities with the worst air quality in Indonesia and experienced flooding almost annually. One effort to address these issues is to increase the area of public green open space (RTH) (Fildayani & Fatmawati, 2025; Haaland & Konijnendijk, 2015; Maryanti, Khadijah, Uzair, & Ghazali, 2016). Without prioritizing green open space, it will be ecologically difficult for a large city to create and maintain protected areas for hydrological sustainability (Suwarli, 2015). Jakarta's buffer zone is experiencing significant population migration pressure, increasing the need for residential, educational, commercial, and service areas. This will result in increasingly limited and insufficient green open space (Li, Luo, Liu, Xiong, & Zhu, 2021; Nababan & Ambarini, 2025).

Previous studies have highlighted the importance of green open space in urban areas. Suwarli (2015) emphasized the ecological challenges of maintaining hydrological sustainability without adequate green spaces, while Aji et al. (2020) documented the pressure of urbanization on land availability in Jakarta's buffer zones, including areas like South Tangerang. However, these studies primarily focused on general challenges and did not provide

a comprehensive, spatially explicit strategy for achieving specific green space targets (Daniels et al., 2018; Pulighe, Fava, & Lupia, 2016). This represents a significant research gap, particularly in developing practical approaches for municipalities facing rapid urbanization (Ahmed, 2024; Ali, Niaz, Ahmad, & Khan, 2024; Koko & Bello, 2023; Patel & Raval, 2024).

Green open space can be in the form of Public Green Open Space, namely green open space owned, managed, and/or acquired by the Regency/City Regional Government or the Special Capital Region Government through collaboration with the government and/or community and used for the public interest, or in the form of Private Green Open Space, namely green open space owned by certain institutions or individuals whose use is for a limited group.

South Tangerang City Regional Regulation Number 9 of 2019 concerning Amendments to Regional Regulation Number 15 of 2011 concerning the South Tangerang City Spatial Planning Plan for 2011–2031 stipulates that the provision of green open space in South Tangerang City includes private green open space and public green open space, with private green open space covering at least 10% (ten percent) of the city area, or approximately 1,648 hectares, and public green open space covering 20% (twenty percent) of the city area, or approximately 3,297 hectares, for a total green open space area of at least 30% (thirty percent) of the city area, or approximately 4,945.64 hectares.

The urgency of this research lies in the significant gap between the regulatory target (20% public green space) and the current reality (only 5.23%), coupled with South Tangerang's deteriorating environmental conditions. This study addresses this pressing urban planning challenge by developing an actionable strategy to bridge this implementation gap (Fazli et al., 2017; Hooper et al., 2021; Mazzetto, 2024; Miller, Adams, & Wellenius, 2025).

The purpose of this study is to analyze the adequacy of the required area of public green open space and the suitability of existing public green open space with the RTRW green open space, as well as to identify potential land for fulfilling public green open space. After that, it is necessary to formulate a strategy to fulfill the public green space requirement in South Tangerang City to a minimum of 20% of the city's area. The novelty of this research lies in its integrated methodological approach, combining geospatial analysis (GIS and remote sensing), multi-criteria decision-making (Analytic Hierarchy Process), and strategic planning (SWOT analysis) to identify not only where green spaces can be developed but also how to prioritize and implement them effectively. This research is expected to provide solutions to achieve the target of a minimum of 20% of public green space in South Tangerang City.

METHOD

Research Location

This research was conducted in South Tangerang City, Banten Province. South Tangerang Regency is located in the eastern part of Banten Province, between coordinates 106˚38’-106˚47’ East Longitude and 06˚13’30”-06˚22’30” South Latitude. A map of the research location is presented in Figure 1.

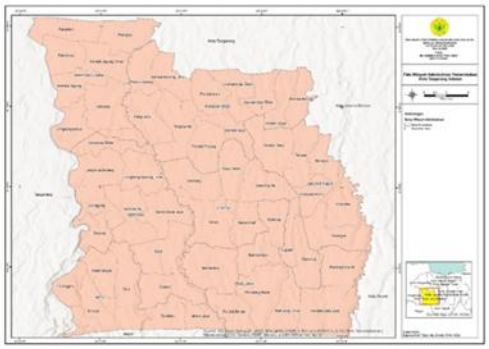


Figure 1. Research Location
Source: GIS Analysis Author, (2024)

Data Collection Techniques

The data used in this study is mostly secondary data, namely the 2024 land use map of South Tangerang City, the South Tangerang City Spatial Plan Map, the South Tangerang City Public Green Open Space Map, the Road Network Map, the Population Density Map, and the Land Price Map. Supporting data or literature supporting this research, such as laws and regulations, journals, and books, were collected online or by browsing using an automated search engine with the help of the internet. Data collection data analysis techniques for each research objective are listed in Table 1.

Table 1. Data Collection and Data Analysis Techniques

Goal	Data Collection Techniques	Data Analysis Techniques
1. Analyze the adequacy of existing public green space and the suitability of existing public green space locations with the RTRW (Regional Spatial Plan).	• Secondary Data Survey	• Geographic Information System
2. Analyze the potential land availability for public green space.	• Secondary Data Survey • Primary Data Survey (Observation, Interview, Documentation)	• Satellite Image Interpretation • Field Survey • Geographic Information Systems
3. Develop a strategy to fulfill the public green space requirement in South Tangerang City to achieve the target of 20% of the total area.	• Interview	• Interviews • Process Hierarchy Analysis (AHP) • SWOT Analysis

Data Analysis Techniques

Analysis of The Calculation of The Level of Adequacy of Public Green Open Space Area

The analysis of the calculation of the adequacy level of public green space area was conducted by comparing the existing public green space with the target of 20% of the area and overlaying the existing green space data with the Spatial Planning (RTRW) data to determine the suitability of public green space. Furthermore, an analysis of the potential land availability for public green space in South Tangerang City was conducted to achieve the 20% target using AHP and Weight Sum Overlay analysis, with variables such as land use, population density, accessibility, and land price. Finally, a strategy for fulfilling the public green space area was developed through a SWOT analysis and the analysis hierarchy process.

The calculation of the adequacy level of the public green space area was done by comparing the existing public green space area with the 20% target area of public green space in the RTRW. The analysis of the suitability of the existing public green space location with the Spatial Planning (RTRW) was obtained through overlay using ArcGIS software. In this study, the location of public green space was classified as follows:

- Suitable, if the existing land use aligns with the spatial pattern guidelines in the RTRW document and map.
- Not Appropriate, if land use does not comply with the spatial pattern directions in the RTRW documents and maps.

Analysis Of Potential Land Availability

The analysis of potential land availability for public green open space (GOS) in South Tangerang City, in accordance with the 20% target for public green open space, was conducted using AHP weighting and Weight Sum Overlay.

The stages of the AHP analysis are:

1. Variable Identification

In this study, based on the results of the literature review, four variables were selected to identify suitable locations for public green open space: land use, population density, accessibility, and land price.

2. Hierarchy Construction

A hierarchy is an abstraction of the structure of a system that studies the functional interactions between components and their impacts on the system.

The hierarchy or decision structure is constructed to illustrate the identified variables or decision alternatives (Makkasau, 2012). In this study, the AHP hierarchy can be seen in Figure 2 below:

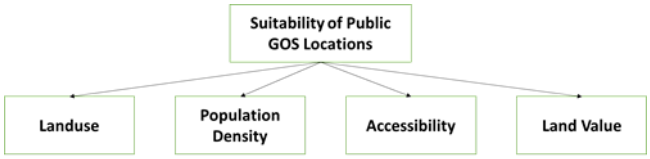


Figure 2. AHP Hierarchy

Source: Developed by the Author (2024)

Determining Priorities

For each variable, we conducted a pairwise comparison, comparing each variable with other elements at each hierarchical level in pairs to obtain a value for the variable's importance in the form of a qualitative opinion. To quantify these qualitative opinions, a rating scale was used to obtain a numerical (quantitative) opinion value. The relative comparison values were then processed to determine the relative ranking of all alternatives (Makkasau, 2012). Qualitative and quantitative criteria were compared according to predetermined assessments to produce rankings and priorities. Each pairwise comparison was evaluated on a Saaty's scale of 1–9.

The AHP value weights were obtained from five sources from agencies: the Conservation Division of the South Tangerang City Environmental Agency, the Park Maintenance Section of the South Tangerang City Environmental Agency, the Planning and Development Agency (Bapppedalitbang), and the Expert Team for the Drafting of the South Tangerang City Spatial Plan (RTRW). The results of the variable evaluation ratios from the AHP scale are presented in matrix form. The matrix orders were normalized and diagonally added to obtain eigenvalues.

4. Consistency Test

Saaty's AHP also addresses questions regarding the logical consistency of the sources. The consistency index (CI) is a mathematical calculation for each pairwise comparison—a comparison matrix. This CI indicates the level of consistency. Then, the random index (RI), as the result of dividing the absolute random responses by the CI, produces the consistency ratio (CR). The Random Index (RI) is the average value of randomly selected CIs and is assigned the following values:

n	1	2	3	4	5	6	7	8	9	10
RI	0	0	5,8	0,9	1,12	1,24	1,32	1,41	1,45	1,49

The higher the CRs, the lower the consistency, and vice versa (Makkasau, 2012).

5. Weighting

The weights obtained from the AHP calculation are then used as multipliers for each variable to calculate the location suitability index for public green open space in South Tangerang City. The weights for each sub-variable can be seen in Table 2 below:

Table 2. Sub-Variable Weight Value

Variable	Sub Variable	Weight
Landuse	Dryland Forest	5
	Shrubs/Brushes	5
	Empty Land	5
	Green Open Space	5
	Grassland	5
	Plantations/Orchards	4
	Fields/Fields	3
	Rain-fed Rice Fields	2
	Lakes/Situations	1
	Water Ponds	1
	Trade and Services	1
	Settlements	1
	Rivers	1
	Fish Ponds	1
Land Value (Rp.)	<2 million	5
	2-4 million	4
	4-6 million	3
	6-8 million	2
	8-10 million	1
Population Density (jiwa/km^2)	>16.000	5
	14.000-16.000	4
	12.000-14.000	3
	10.000-12.000	2
	< 10.000	1
Accessibility (/km)	>20	5
	18-20	4
	16-18	3
	14-16	2
	<14	1

Source: AHP Calculation Results from interviews with expert sources (LH Office, Bapppedalitbang, RTRW Drafting Team) by the Author (2024)

6. Determining Land Potential

To determine the potential land area for public green open space (GOS), an index value threshold is established to achieve a minimum of 20% of the area's GOS. This index is a single score resulting from the combined values (measurement transformation) of the variables, which is then used to determine the level of potential. From this index value, the potential land area for public green open space (GOS) is obtained, as can be seen in Figure 3

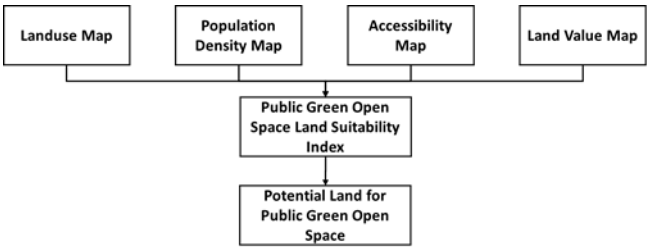


Figure 3. Flowchart for Determining Land Potential for Public Green Open Space

Source: Developed by The Author (2024)

Developing a Strategy to Fulfill the Need for Public Green Open Space

Developing a strategy to fulfill the public green open space (RTH) area is the necessary steps to achieve the goal of fulfilling the public green open space area. This strategy is obtained through a SWOT analysis and the analysis hierarchy process. SWOT analysis is an analytical tool used to identify weaknesses, opportunities, strategies, and threats. The SWOT analysis was obtained from interviews with informants. The SWOT-AHP hierarchy in this study can be seen in Figure 4 below:

Figure 4. SWOT-AHP Hierarchy

Source: Developed by The Author (2024)

Strategy formulation is carried out by considering internal and external factors. After grouping several internal and external factors, the next step is to assess the factors by multiplying their weights and significance values, based on the questionnaire data completed by the informants. Weights are calculated from 0.0 (not important) to 1.0 (very important). The sum of the weights for strengths and weaknesses is 1.00, and the sum of the weights for opportunities and threats is also 1.00. Strengths, weaknesses, opportunities, and threats are rated from 1 (below average), 2 (average), 3 (above average), and 4 (very good) based on their influence on the fulfillment of public green open space.

The SWOT analysis approach, incorporating the interaction of the IFAS/EFAS matrix, to identify the most appropriate strategic alternatives, prioritizes the importance of the issues raised at each level using AHP analysis. The results of the AHP analysis will serve as

recommendations for alternative policy strategies in decision-making to achieve the desired goals. Next, an internal-external analysis is carried out using a matrix as seen in Figure 5 below:

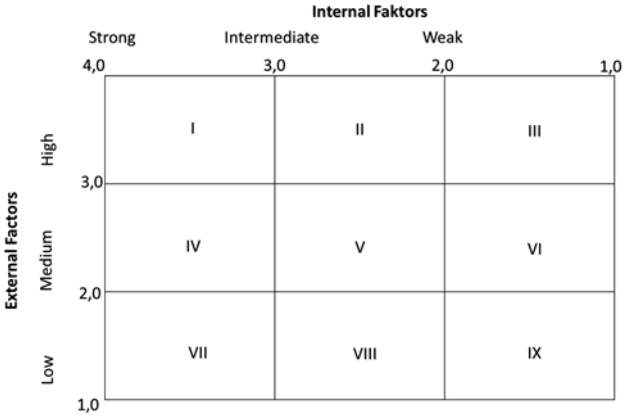


Figure 5. Internal-External Matrix
Source: Developed by The Author (2024)

Next, an AHP analysis is carried out on the sequence of existing alternative strategies.

RESULTS AND DISCUSSION

Public Green Open Space in the South Tangerang City RTRW 2011-2031

In the Regional Regulation of South Tangerang City Number 9 of 2019 concerning Amendments to Regional Regulation Number 15 of 2011 concerning the Spatial Planning of South Tangerang City for 2011 – 2031, it is stated that the target for the number of green open spaces (GOS) has increased to 30% by the end of the planning year from the city area or an area of approximately 4,945.64 ha. The provision of green open spaces includes private green open spaces of at least 10% of the city area or an area of approximately 1,648 ha and the provision of public green open spaces of 20% of the city area or an area of approximately 3,297 ha.

The Public Green Open Space Plan Map in the South Tangerang City RTRW can be seen in Figure 6.

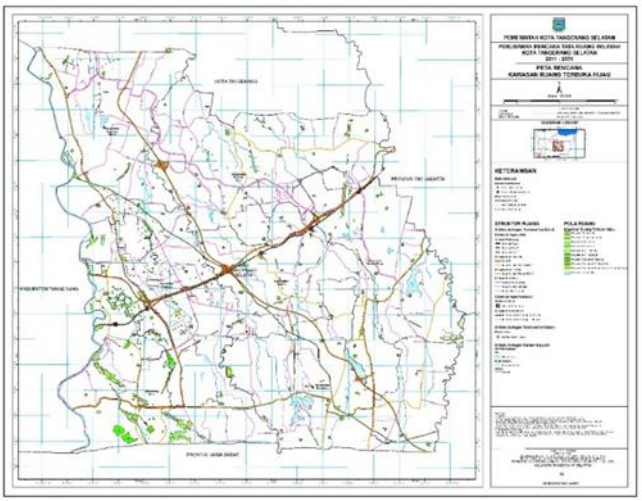


Figure 6. South Tangerang City's RTRW Green Open Space Plan
Source: Developed by The Author (2024)

Existing Public Green Open Space (GOS)

Based on the results of data inventory from the Environmental Service and the Development Planning, Research and Development Agency of South Tangerang City, the distribution of existing green open space in South Tangerang City can be seen in Figure 7.

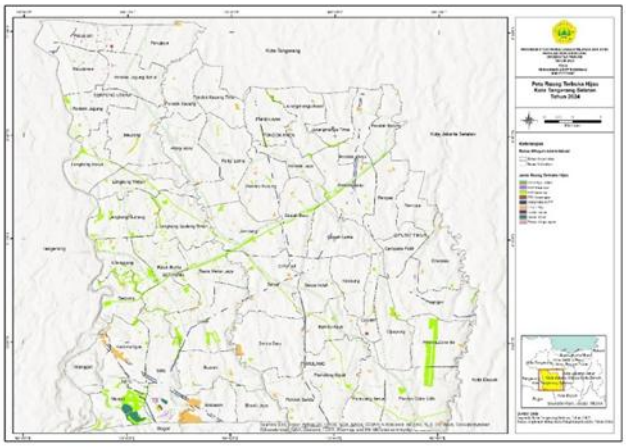


Figure 7. South Tangerang City Public Green Open Space Map
Source: Developed by The Author (2024)

Details of the area of green open space based on its type can be seen in Table 3 below:

Table 3. Public Green Open Space Area in South Tangerang City in 2024

No.	Types of Public GOS	Area (Ha)
1	Jalur Hijau Jalan	186
2	RTH Halaman	5
3	RTH Lainnya	396
4	RTH Lapangan	4
5	Sempadan SUTT	77
6	Taman Jalan	4
7	Taman Kota	28
8	Taman Lingkungan	6
9	TPU/TPBU	155
	Total	863

Source: Inventory Data of the Environment Agency and Bapppedalitbang of South Tangerang City (2023), calculated and analyzed by the Author (2024)

The percentage ratio between area of public green open space calculated and administrative area of South Tangerang City is 5.23%.

Level of Adequacy of Public Green Open Space

Based on the Regional Regulation of South Tangerang City Number 9 of 2019-2019 concerning Amendments to Regional Regulation Number 15 of 2011 concerning the Spatial Planning of South Tangerang City for 2011-2031, it is stated that the target number of public green open spaces is 20% of the city area or an area of 3,297 ha, while the existing area of public green open spaces in 2024 in South Tangerang City is 863. Therefore, the area of public green open spaces in South Tangerang City is still short by 14.77% or 2,434 Ha.

Suitability of Existing Green Open Space Locations with RTRW Green Open Space

The results of the analysis of the suitability of the existing green open space location with the RTRW green open space can be seen in Figure 8.

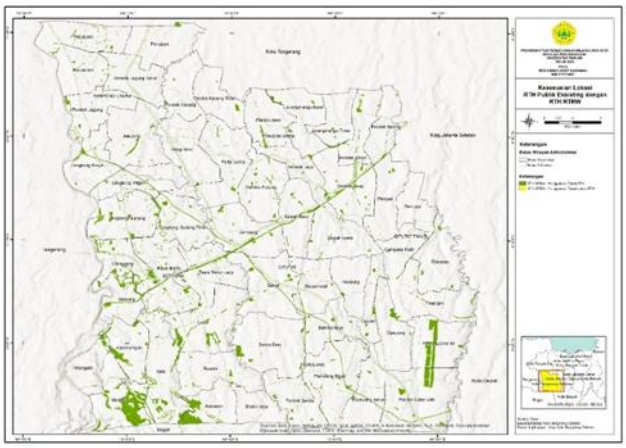


Figure 8. Map of the Conformity of Existing Green Open Space Locations with the RTRW Green Open Space

Source: Developed by The Author (2024)

The extent of suitability of the existing public green open space location with the RTRW green open space can be seen in Table 4 below:

Table 4. Area of Compliance of Existing Green Open Space Location with Green Open Space RTRW

RTRW Space Pattern	Land Use (Ha)		
	RTH Publik	Bukan RTH Publik	Total
RTH	862	4	866

Source: Results of GIS Overlay Analysis between Existing RTH Data and RTRW Plan Map by the Author (2024)

Table 4 above shows that the total green open space area in the South Tangerang City RTRW is 866.21 hectares, or 5.2% of the total area. Of the total planned green open space, 862.59 hectares are existing public green open spaces, and 3.62 hectares are non-public green open spaces.

From Table 4 above, it can be seen that the total area of green open space (RTH) in the South Tangerang City RTRW is 866 hectares, or 5.2% of the area. Of the total planned green open space, 862 hectares are existing public green open spaces, and 4 hectares are non-public green open spaces.

Potential Land Availability to Fulfill Public Green Open Space Area

Analysis of the potential availability of land to fulfill the area of Public Green Open Space is obtained by weighting the overlay of land use variables, population density, accessibility, and land value as can be seen in Figure 9, Figure 10, Figure 11, and Figure 12.

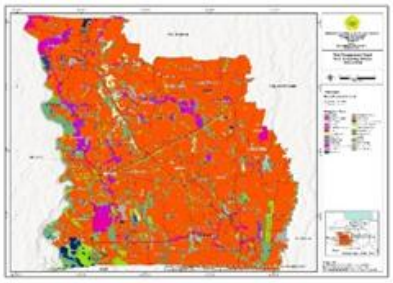


Figure 9. Land Use Map
Source: Results of Satellite Image Interpretation and Land Use Classification of South Tangerang City in 2024 by the Author

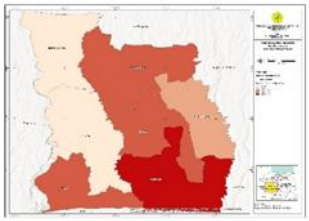


Figure 10. Population Density Map
Source: Data Processing Results from the Central Statistics Agency (BPS) of South Tangerang City in 2024, analyzed spatially by the author

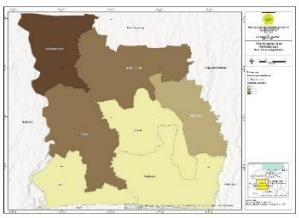


Figure 11. Accessibility Map
Source: Results of *Network Analyst* Analysis based on South Tangerang City Road Network Data in 2024, processed by the Author

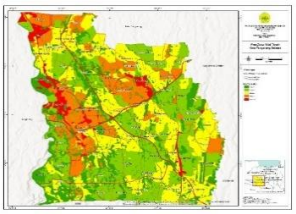


Figure 12. Land Value Map
Source: Results of Classification and Spatial Analysis of Land Value Data (PBB) from the South Tangerang City Tax Service Office in 2024, processed by the Author

Based on interviews with sources, the weights obtained are as shown in Table 5.

Table 5. Weighting Values of Public Green Open Space Area Fulfillment Variables

Variable	Land use	Population Density	Accessi-bility	Land Value	Weight
Land Use	0,597	0,662	0,536	0,438	0,558
Population Density	0,199	0,221	0,321	0,313	0,263
Accessibility	0,119	0,074	0,107	0,188	0,122
Land Value	0,085	0,044	0,036	0,063	0,057

Source: Results of *the Pairwise Comparison Matrix* Analytic Hierarchy Process (AHP) calculation based on the assessment of five expert sources, processed by the Author (2024)

From the consistency test calculations for the pairwise comparison matrix above, we obtain:
λmax = 4.18
Consistency Index (CI) = 0.06
Random Index = 0.9
Consistency Ratio (CR) = 0.07
Because CR < 0.1 (10%), the consistency level is considered acceptable.

The results of this weighting produce a conformity index for fulfilling the area of public green open space, as shown in Figure 13.

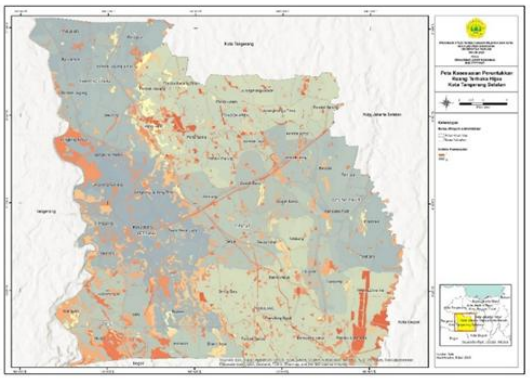
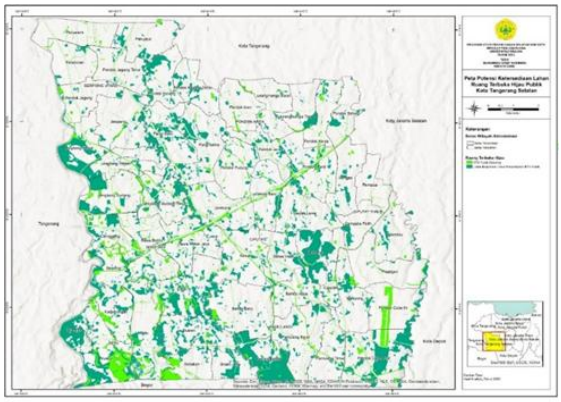


Figure 13. Map of the Location Suitability Index for Public Green Open Space in South Tangerang City
Source: Results of *Weighted Sum Overlay* Analysis (Variables of Land Use, Population Density, Accessibility, and Land Value) by the Author (2024)

Based on this index, to obtain a minimum area of 20% of the area for public green open space, the suitability index used is greater than or equal to 0.46. The total land area with the potential to fulfill the area of public green open space is 2,539 or 15.40%, as can be seen in Figure 14.



With this potential, the area of green open space in South Tangerang City can increase from 5.23% or 863 Ha to 20.64% or 3,402 Ha.
The existing area and recommendations for fulfilling public green open space per sub-district can be seen in table 6 below:

Table 6. Area and Percentage of Existing Green Open Space and Potential for Addition

Sub-District	Existing GOS		Potential Additional GOS		Total	
	Area (Ha)	%	Area (Ha)	%	Area (Ha)	%
Ciputat	97	0,59%	256	1,55%	353	2,14%
Ciputat Timur	57	0,35%	125	0,76%	182	1,10%
Pamulang	146	0,89%	651	3,95%	797	4,83%
Pondok Aren	87	0,53%	342	2,07%	429	2,60%
Serpong	197	1,19%	569	3,45%	766	4,65%
Serpong Utara	66	0,40%	213	1,29%	279	1,69%
Setu	213	1,29%	384	2,33%	597	3,62%
Tangerang Selatan	863	5,23%	2.539	15,40%	3402	20,64%

Source: Results of Synthesis between Existing RTH Data and Land Potential Analysis by the Author (2024)

Public Green Space Fulfillment Strategy

The strategy for fulfilling public green open space is obtained through SWOT analysis as well as IFAS and EFAS as can be seen in table 7, table 8, and table 9. The results of the IE Matrix as in figure 15. it is known that the fulfillment of the area of Public Green Open Space is in quadrant I which means that the fulfillment of the area of Public Green Open Space is a priority program that deserves to be developed proactively and expansively. The South Tangerang City Government should take major and rapid steps to build the momentum of success, while maintaining sustainability and public participation.

Table 7. SWOT Matrix

IFAS / EFAS	**Strength (S)** S1: RTRW Target S2: Green Open Space Needs S3: Land Availability	**Weakness (W)** W1: Land Limitations W2: Spatial Planning W3: Budget Limitations
Opportunity (O) O1: Provision of green open space by the private sector O2: Development of Centers O3: Support for national policies	**S-O Strategies** Collaboration between local governments, communities, and the private sector to achieve green open space targets. Coordination between local governments and the central government to ensure the provision of public green open space within the central government's development program is maximized. Request policy support from the central government to achieve the minimum green open space area.	**W-O Strategies** Collaborate with the private sector to utilize their land for green open space. Plan and manage public green open space with all stakeholders. Request funding support from the central government for the development of public green open space.
Threat (T) T1: Urbanization T2: Economic Needs T3: Infrastructure Development	**S-T Strategies** Maximizing the potential of existing spaces to achieve the 20% public green open space target. Socializing the 20% green open space target and raising awareness that economic activity and environmental sustainability must be balanced.	**W-T Strategies** Revise the spatial plan (RTRW) to allocate at least 20% of green open space to public use. Create regulations on green infrastructure and green buildings.

	Providing incentives to housing and commercial developers who provide green open space covering 20% of their developed land.	Promote green economy programs.

Source: Compiled by the Author (2024) based on the identification of internal and external factors from the results of interviews and literature studies

Table 8. IFAS Matrix for Green Open Space Expansion in South Tangerang City

Internal Factors (Strength)			
Factor	**Significance Level**	**Weight**	**Score**
S1: RTRW Target	3,1	0,16	0,50
S2: Public GOS Demand	2,4	0,12	0,30
S3: Land Supply	2,8	0,14	0,39
Sub-total	**8,3**	**0,43**	**1,19**
Internal Factors (Weakness)			
W1: Land limitations	3,8	0,20	0,74
W2: GOS Spatial Pattern	3,7	0,19	0,71
W3: Budget Constraints	3,6	0,19	0,67
Sub-total	**11,1**	**0,57**	**2,12**
Total	**19,4**	**1,00**	**3,31**

External Factors (Opportunity)			
Factor	**Significance Level**	**Weight**	**Score**
O1: GOS Provision by private sector	3,1	0,17	0,51
O2: GOS by Central Government	2	0,11	0,21
O3: National policy support	2,5	0,13	0,33
Sub-total	**7,6**	**0,41**	**1,06**
External Factors (Threat)			
T1: Urbanization	3,8	0,20	0,77
T2: Economic needs	3,7	0,20	0,73
T3: Infrastructure Development	3,6	0,19	0,69
Sub-total	**11,1**	**0,59**	**2,20**
Total	**18,7**	**1,00**	**3,26**

Source: Results of analysis and calculation of internal factor weighting based on questionnaires and interviews with sources, processed by the Author (2024)

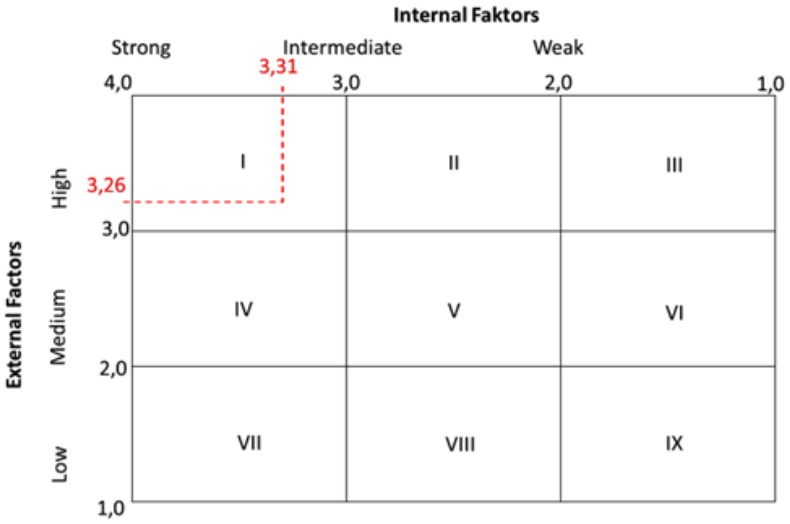


Figure 13. IE Matrix

Source: Plotting results of the total IFAS and EFAS scores on the Internal-External (IE) matrix, processed by the Author (2024).

Table 9. EFAS-IFAS SWOT Matrix

IFAS / EFAS	S : 1,19	W : 2,12
O : 1,06	SO : 1,19 + 1,06 = 2,25	WO : 2,12 + 1,06 = 3,18
T : 2,2	ST : 1,19 + 2,2 = 3,39	WT : 2,12 + 2,2 = 4,32

Source: Results of synthesis and calculation of the combination of IFAS and EFAS scores to determine strategic positions, processed by the Author (2024)

Based on the EFAS-IFAS SWOT matrix in Table 9, the strategic alternative with the highest weighting is Weaknesses-Threats, thus it can be translated as a Defensive Strategy. The W-T strategy seeks to minimize internal weaknesses and avoid external threats. This is the most defensive approach in the SWOT matrix because the situation is unfavorable from both internal and external perspectives.

The results of the AHP calculation for the formulated strategic alternatives are as shown in Table 10. with consistency level 0,99%.

Table 10. Alternative Strategy Weight

Alternative Strategies	**WT1: Revision of Spatial Pattern**	**WT2: Green Infrastructure**	**WT3: Green Economy**	**Weight**
WT1: Revision of Spatial Pattern	0,69	0,77	0,43	0,63
WT2: Green Infrastructure	0,14	0,15	0,29	0,19
WT3: Green Economy	0,23	0,08	0,14	0,15

Source: Results of the calculation of the Analytic Hierarchy Process (AHP) for the weighting of alternative strategy priorities, processed by the Author (2024)

Several alternative strategies that are expected to be implemented to fulfill the public green space requirement are as follows:

1. Revise the RTRW spatial plan to allocate a minimum of 20% of public green space. With massive development and a growing population, the amount of public green space should also be considered, ensuring at least the minimum target is met. The revised green space in the RTRW spatial plan needs to be revised to achieve the 20% green space target in the RTRW, which can serve as a legal basis or reference for granting development permits and controlling land use.
2. Establish regulations on green infrastructure and green buildings. These regulations can be formalized in the form of Regional Regulations (Perda) or Mayoral Regulations that require the application of green building and infrastructure principles in new projects and renovations. These regulations are expected to make green green space an integrated part of development, not simply a waste of space.
3. Promote a green economy program. A green economy is a development model that focuses on a balance between economic growth, environmental sustainability, and social justice. The goal of this program is to make green green space part of productive and sustainable economic activities, while simultaneously creating jobs and stimulating the economy.

CONCLUSION

The existing green open space area in South Tangerang City compared to the target number of public green open spaces in the South Tangerang City Spatial Plan (RTRW) of 20% of the city's area, or 3,297 hectares, is still short by 14.77%, or 2,434 hectares. After conducting an overlay analysis with the Public Green Open Space Plan in the RTRW, it was found that the planned area of Public Green Open Space in the South Tangerang City RTRW is 866 hectares, or 5.2% of the area. Of the total planned green open space, 862 hectares are existing public green open spaces, and 4 hectares are not public green open spaces. The existing Spatial Plan of the RTRW does not yet plan for 20% of public green open spaces. The potential land area for public green space (GOS) is 5.23%, or 862.59 hectares, which could increase by 15.40% from the existing 2,539.39 hectares to 20.64%, or 3,401.98 hectares. The South Tangerang City Government has not optimized public green space services, as evidenced by the failure to achieve the minimum green space area. Therefore, the results of this study suggest that a strategy for fulfilling public green space is needed, focusing on implementing a defensive strategy to mitigate weaknesses and avoid threats to existing green space in South Tangerang City. Priority strategies include revising the spatial plan (RTRW) to allocate a minimum of 20% of public green space, establishing regulations on green infrastructure and green buildings, and promoting a green economy program.

REFERENCES

Ahmed, M. R. (2024). *Urban development challenges and solutions in Indian municipalities. International Journal of Emerging Knowledge Studies.* https://doi.org/10.70333/IJEKS-03-10-013

Ali, S., Niaz, H., Ahmad, S., & Khan, S. (2024). *Investigating how rapid urbanization contributes to climate change and the social challenges cities face in mitigating its effects.*

Review of Applied Management and Social Sciences. https://doi.org/10.47067/RAMSS.V8I1.429

Aji, G. P., Ardiansyah, M., & Gunawan, A. (2020). *Perubahan dan prediksi penggunaan lahan ruang terbuka hijau di Kota Depok. Jurnal Ilmu Tanah dan Lingkungan, 22*(2), 95–100.

Daniels, B., Zaunbrecher, B. S., Paas, B., Ottermanns, R., Ziefle, M., & Roß-Nickoll, M. (2018). *Assessment of urban green space structures and their quality from a multidimensional perspective. Science of the Total Environment.* https://doi.org/10.1016/j.scitotenv.2017.09.167

Fazli, G. S., Creatore, M. I., Matheson, F. I., Guilcher, S. J. T., Kaufman-Shriqui, V., Manson, H., Johns, A., & Booth, G. L. (2017). *Identifying mechanisms for facilitating knowledge to action strategies targeting the built environment. BMC Public Health.* https://doi.org/10.1186/s12889-016-3954-4

Fildayani, & Fatmawati. (2025). *Policy network in implementing the green open space in Luwu Timur. Journal of Public Representative and Society Provision.* https://doi.org/10.55885/jprsp.v5i3.603

Haaland, C., & Konijnendijk, C. C. (2015). *Challenges and strategies for urban green-space planning in cities undergoing densification: A review. Urban Forestry & Urban Greening.* https://doi.org/10.1016/j.ufug.2015.07.009

Hooper, P., Boulangé, C., Arciniegas, G., Foster, S., Bolleter, J., & Pettit, C. (2021). *Exploring the potential for planning support systems to bridge the research-translation gap between public health and urban planning. International Journal of Health Geographics.* https://doi.org/10.1186/s12942-021-00291-z

Koko, A. F., & Bello, M. (2023). *Exploring the contemporary challenges of urbanization and the role of sustainable urban development: A study of Lagos City, Nigeria. Journal of Contemporary Urban Affairs.* https://doi.org/10.25034/ijcua.2023.v7n1-12

Li, S. J., Luo, Y. F., Liu, Z. C., Xiong, L., & Zhu, B. W. (2021). *Exploring strategies for improving green open spaces in old downtown residential communities from the perspective of public health to enhance the health and well-being of the aged. Journal of Healthcare Engineering.* https://doi.org/10.1155/2021/5547749

Maryanti, M. R., Khadijah, H., Uzair, A. M., & Ghazali, M. A. R. M. M. (2016). *The urban green space provision using the standards approach: Issues and challenges of its implementation in Malaysia.* https://doi.org/10.2495/sdp160311

Mazzetto, S. (2024). *A review of urban digital twins integration, challenges, and future directions in smart city development. Sustainability.* https://doi.org/10.3390/su16198337

Miller, D., Adams, Q. H., & Wellenius, G. A. (2025). *Urban collaborations: Bridging the gap between research and action on climate change and health. Deleted Journal.* https://doi.org/10.3138/jccpe-2024-0035

Nababan, A. N. P., & Ambarini, L. A. D. (2025). *Sustainable strategy of green open space in reducing stress levels in urban areas. Journal of Placemaking and Streetscape Design.* https://doi.org/10.61511/jpstd.v2i2.2025.1485

Patel, J., & Raval, Z. (2024). *The impacts of urbanization on ecological systems: A comprehensive study of the complex challenges arising from rapid urban growth. Research Review Journal of Indian Knowledge Systems.* https://doi.org/10.31305/rrjiks.2024.v1.n1.001

Pulighe, G., Fava, F., & Lupia, F. (2016). *Insights and opportunities from mapping ecosystem services of urban green spaces and potentials in planning. Ecosystem Services.* https://doi.org/10.1016/j.ecoser.2016.09.004

Putra, B. D. (2017). *Placemaking dynamics of green space production in urban kampung setting: A case study in Jakarta, Indonesia.*

Rigolon, A., Browning, M. H. E. M., Lee, K., & Shin, S. (2018). *Access to urban green space*

in cities of the global south: A systematic literature review. Urban Science. https://doi.org/10.3390/urbansci2030067

Suwarli, H. (2015). *APBD hijau dan politik penganggaran tata ruang.* Dalam *Prosiding Pertemuan Ilmiah Tahunan (PIT) Nasional ke-2, Ikatan Widyaiswara Indonesia (IWI) Provinsi Banten*, Pandeglang, 3–4 Desember 2015. IWI, Pandeglang.

Wicaksono, A., Dharmowijoyo, D. B. E., Tanjung, L. E., & Susilo, Y. O. (2023). *The reciprocal effects of physical activities and ride-sourcing on health. International Journal of Sustainable Transportation.* https://doi.org/10.1080/15568318.2023.2180787