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Management Strategy for Public Green Open Spaces in Medan City Using SWOT Analysis

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ABSTRACT

Medan City, the third-largest city in Indonesia, faces significant challenges in managing its public green open spaces (RTH) due to high population density, rapid urbanization, and insufficient green space, which falls far short of the 30% mandated by law. This research assesses the management of public green spaces in Medan through a SWOT analysis, revealing internal strengths such as a Regional Spatial Plan and government commitment, alongside weaknesses like suboptimal management, lack of coordination between agencies, and inadequate regulations. External factors, including opportunities from NGO funding and potential land acquisition, contrast with threats like rapid population growth and misuse of green spaces. Through data collection methods, including focus group discussions, questionnaires, and interviews with key stakeholders, the research identified key areas for improvement in green space management. Strategic recommendations include strengthening policies, increasing public awareness, optimizing cross-sector collaboration, and promoting sustainable urban planning. Additionally, leveraging green spaces for economic growth through multifunctional uses can enhance their value to the community. This study concludes that public green open spaces in Medan City can contribute significantly to sustainable urban development and environmental balance if managed more effectively, with better coordination, stronger regulations, and resource allocation. The findings aim to provide valuable insights for urban planners and policy makers in achieving urban sustainability goals.

Keywords: Environmental, Green City, Green Community, Population Density

1. Introduction

Medan is the third-largest city in Indonesia, characterized by a high population density. With a population of 2,494,512 people and a total area of 28,199.47 hectares, the city's population density has led to an increase in vehicle usage, consequently raising emissions and air pollution (Badan Pusat Statistik Medan, 2022). One way to reduce emissions and air pollution is by providing green open spaces. To accommodate the city's population growth and development, as well as various socio-economic and physical activities, green open spaces are essential. These areas can take the form of long lines or regional areas and are used more freely without buildings (Rofi *et al*., 2021).

Green open space is an area that is either linear or clustered, where the land use is more open, allowing for the natural growth of plants or the intentional planting of vegetation. Green open space consists of two categories:

public green open space and private green open space. Public green open space is green open space owned and managed by the government for public use. Private green open space is green open space designated for specific areas such as gardens or yards owned by individuals or groups (Regulation of the Minister of Public Works No. 5 of 2008).

Article 29, paragraph 1 of Law No. 26/2007 on Spatial Planning mandates that at least 30% of urban areas must consist of green open spaces, with 20% allocated for public use and 10% for private use (Law Number 26 of 2007). Medan City, which comprises 21 districts with a total area of 28,199.47 hectares, is required to have 5,639.89 hectares of public green open space. However, based on the 2023 Final Report on the Compilation of the Environmental Quality Index for Medan City, the existing public green open space area in Medan is only 1,897.37 hectares, resulting in a public green open space ratio of 6.93% (Medan City Environment Agency, 2023). According to Wahyu Fahreza *et al*. (2022), the area of green open space that must be met based on oxygen demand for residents, motorized vehicles, and industry in Medan City is 101.74 km² or 38% of the Medan City area. Silalahi and Harianja (2014) stated that the area of public green spaces in Medan City is insufficient to maintain the sustainability and balance of the ecosystem. The availability of green open spaces in Indonesia especially in Medan City falls short of the established standards (Fattah, 2008). Hakim (2004) stated that several parties are involved in managing green areas, including the government, the private sector, the community, and the media.

Research by Pratama et al., 2022 on public green open space management in Medan City identified three main aspects: (1) Physical Aspects; Green open spaces are well organized and equipped with facilities, but the distribution is uneven, resulting in inconsistent quality and facilities. (2) Functional Aspect; Lack of counseling and information to the community on the maintenance of green open spaces results in suboptimal management. (3) Managerial Aspects; Despite funding from the private sector and community levies as well as regulations protecting green open spaces, government coordination and community awareness are low. Many green open spaces are not protected by regulations, especially when they are located in private areas or not yet detected as green open spaces. Another issue is technical implementation of management is not maximized, with limited maintenance funds.

This research analyses the management of public green open space in Medan City in terms of its adequacy and distribution, its function, and also the coordination of its management among the agencies responsible for it. This research also aims to provide suggestions on public green open space management strategies in Medan City for more effective planning, decision-making and management.

2. Methods

2.1 Time and Research Location

This research was conducted in Medan City, North Sumatra Province, from April 2023 to October 2023. The activity location map can be seen in Figure 1.

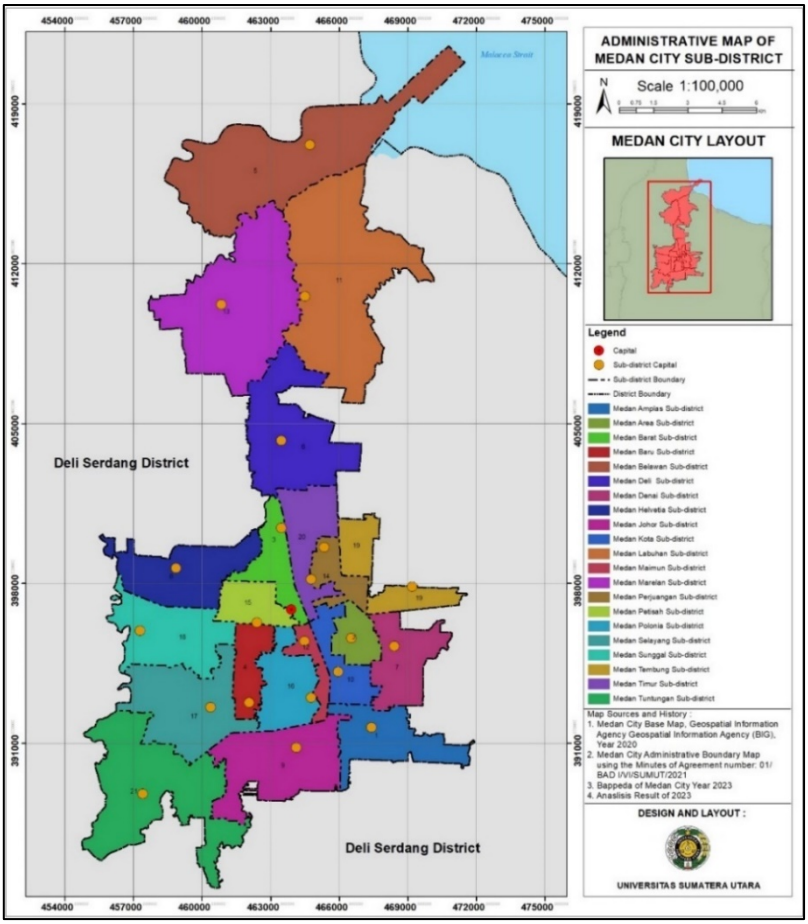

Figure. 1. Map of Medan City

2.2 Data Collection

In this research, the method used is with a focal point on public green space management strategies in Medan City. The determination of the public green open space management strategy in Medan City is carried out using a SWOT analysis.

2.2.1. Focus Group Discussion (FGD)

To gather information about public green open spaces in Medan City, a Focus Group Discussion (FGD) was held on August 15, 2023 in Medan City with four key informants, including: 1) Representative from the Medan City Planning and Development Department, 2) Representative from the Medan City Environmental Department, 3) Representative from the Medan City Water Resources, Construction, and Public Works Department, and 4) Representative from the Medan City Housing, Settlements, and Spatial Planning Department. These stakeholders were selected as the research subjects because they are responsible for managing the public green open spaces in Medan City.

In this discussion, key informants identify and agree on what are the strengths and weaknesses in the management of public green open spaces in Medan City that have been carried out by the Medan City Government in physical aspects, functional aspects, and managerial aspects that will be included in the internal factors. As well as things that become opportunities and weaknesses that will be included in external factors. Brainstorming to present ideas based on experience is the method used to fill in information for each SWOT variable.

Figure. 2. Documentation of Focus Group Discussion

2.2.2. Questionnaire

To determine internal and external factors, questionnaires were distributed to key informants. The questionnaire serves as a tool to inventory different perspectives and opinions on the contents of each SWOT element. The answer to the question used in SWOT analysis is a Likert scale score as follows; 1 for strongly disagree, score 2 for disagree, score 3 for agree, and score 4 for strongly agree. The focus or object of this research is the following organizations: (1) Medan City Environmental Agency; (2) Medan City Department of Housing, Settlement Areas, Public Works, and Spatial Planning; (3) Medan City Water Resources, Public Roads, and Construction Department; and (4) Medan City Regional Planning and Development Agency. Questionnaires were distributed to key informants representing each of these agencies. These organizations were selected as the research subjects because they are responsible for managing the public green open spaces in Medan City.

2.2.3. In-Depth Interview

In this research, semi-structured in-depth interviews were also conducted. Semi-structured interviews combine structured and unstructured interviews, positioned in the middle. The purpose of this type of interview is to find problems more openly, where interviewees are asked for their opinions and ideas (Sugiyono, 2015).

2.3 Data Analysis

SWOT analysis is used in the technical data analysis of this research. Strategies are created using SWOT analysis. The model used to collect data is the External Strategic Factor Analysis Summary (EFAS) matrix and the Internal Strategic Factor Analysis Summary (IFAS) matrix. Strategic determining factors for development are compiled using the SWOT matrix technique. According to Rangkuti (2009), this matrix effectively shows how external opportunities and threats can be linked to the company's strengths and weaknesses.

After determining the internal and external factors, a SWOT diagram is created by comparing opportunities and threats (vertical axis) with strengths and weaknesses (horizontal axis). Positive signs are assigned to strengths and opportunities, while negative signs are given to weaknesses and threats. The difference between the values of strengths (S) and weaknesses (W) should be placed on the (X) axis, and the difference between the values of opportunities (O) and threats (T) should be placed on the (Y) axis. Next, the coordinates (X, Y) should be plotted so that the result of this SWOT diagram will eventually occupy one of the available cells. The direction of space utilization strategies will depend on where the S-W and O-T values are located in the SWOT diagram.

SWOT analysis is used to design strategies for managing public RTH, considering internal and external influences. Identifying the internal (IFAS) and external (EFAS) strategic variables is the first step in creating a SWOT matrix. After that, four options can be created by composing the SWOT matrix. The weighting system will start from a scale of unimportant with a value of 0.0 to a scale of very important with a value of 1.0. The total score is obtained by multiplying the weight and rating of each factor (Utsalina et al., 2020).

3. Result and Discussion

The management of public green open space in Medan City is responsible by 4 agencies, namely (1) Medan City Environmental Agency; Medan City Department of Housing, Settlement Areas, Public Works, and Spatial Planning; (3) Medan City Water Resources, Public Roads, and Construction Department; and (4) Medan City Regional Planning and Development Agency. Each agency has a programme in the implementation of public green open space management in Medan City. But unfortunately, the implementation of programmes from each agency often runs independently and sometimes lacks coordination between agencies, resulting in overlapping work implementation.

In addition, the area of public green open space in Medan City is still far from the provisions of the law which is set at 20% for public use. he area of public green space available in each sub-district of Medan City can be seen in the following table.

Table 1. Area of Public Green Open Space in Medan City in Each Sub-district

No	Sub-district	Subdistrict Area (ha)	Public Green Open Space (ha)	Percentage %
1	Medan Amplas	1,065.05	25.6	0.09
2	Medan Area	424.09	5.59	0.02
3	Medan Barat	633.50	36.46	0.13
4	Medan Baru	542.89	59.70	0.21
5	Medan Belawan	3,326.99	729.73	2.59
6	Medan Deli	1,883.10	53.68	0.19
7	Medan Denai	936.53	25.86	0.09
8	Medan Helvetia	1,305. 49	32.88	0.12
9	Medan Johor	1,672.81	63.73	0.23
10	Medan Kota	574.69	12.36	0.04
11	Medan Labuhan	3,508.71	257.52	0.91
12	Medan Maimun	302.07	29.00	0.10
13	Medan Marelan	3,003	179.63	0.64
14	Medan Perjuangan	453.65	4.54	0.02
15	Medan Petisah	528,01	20.44	0.07
16	Medan Polonia	877.18	54.41	0.19
17	Medan Selayang	1,644.75	51.34	0.18
18	Medan Sunggal	1,326.37	51.13	0.18
19	Medan Tembung	785.21	8.87	0.03
20	Medan Timur	889.40	19.90	0.07
21	Medan Tuntungan	2,515.89	175.28	0.62
	Total	**28,199.47**	**1,897.79**	**6.73**

Based on the results obtained, it shows that of the 21 sub-districts in Medan City, the one with the smallest public green space is Medan Perjuangan sub-district, and the one with the largest public green space is Medan Belawan sub-district. This is in line with the results of research (Rahmawaty et al., 2023) that Medan Belawan District experienced significant and progressive changes in mangrove forest area from 2015 - 2019 with an increase in total area from 393.28 ha to 700.65 ha.

The Medan City Government has been trying to increase the area and distribute public green open spaces evenly in each sub-district, but the limited land and also public awareness in helping the government for land acquisition are still complicated.

Internal and external factors related to public green space management strategies in Medan City were identified through interviews, questionnaires, and focus group discussions (FGD) conducted with key informants. Subsequently, a quantitative SWOT analysis was conducted. This method was used to determine the position of public green spaces in Medan City in the SWOT analysis quadrant. Internal and external factors were ranked and scored (Ginting et al., 2013).

After grouping the strengths, weaknesses, opportunities and threats of the public green open space management strategy of Medan City, it will be analysed using SWOT which can produce possible alternative strategies for managing public green open space. In addition to paying attention to the above factors, from the strengths and weaknesses (internal factors) and opportunities and threats (external factors) in the management of public green open spaces in the city of Medan, the Internal Factor Analysis Summary (IFAS) and External Factor Analysis Summary (EFAS) can be compiled to determine the management strategy that will be used IFAS in a way: (a) Determine the strategic factors that are strengths and weaknesses as well as opportunities and threats. (b) Giving each a weight on a scale of 1 (strongly disagree), scale 2 (disagree), scale 3 (agree), and scale 4 (strongly agree). These factors are likely to have an impact on the strategic factors. (c) Calculating the rating for each factor by giving a scale ranging from 4 (outstanding or highest) to 1 (poor or lowest). The rating value for the opportunity factor is positive (the greater the opportunity is given a rating of +4, but if the opportunity is small, it is given a rating of +1). The threat rating is the opposite. For example, if the threat value is very large, the rating is 1. Conversely, if the threat value is small, the rating is 4. (d) Determine the score value by multiplying the weight and rating. (e) Add up the weighting scores to obtain the total weighting score for IFAS. The table of assessment and weighting of internal factors can be seen in the following Table.

Table 2. Internal Strategic Factors (IFAS)

Synthesis of Strength (S) and Weakness (W) (Internal Factors)

No	Strengths	Amount	Weight	Rating	Score
1	Medan City already has a Regional Spatial Planning	16	0.076	4	0.30
2	Achieving the green open space area target is one of the 17 key performance indicators for the Mayor of Medan under Regional Regulation No. 7 of 2021 on the Regional Medium-Term Development Plan for 2021-2026	13	0.062	3	0.25
3	Medan City already has a Detailed Spatial Planning	16	0.076	4	0.30
4	The Medan City Government has sufficient budget for land management	12	0.057	3	0.23
5	Regional Regulation No. 1 of 2022 on the spatial planning of Medan City	15	0.071	3	0.29
6	Medan City has a 2021-2026 Regional Medium Term Development Plan	10	0.048	2	0.19
7	The Medan City Government already has an integrated service unit for green open space	16	0.076	4	0.30
8	The Medan City Government has provided operational facilities and infrastructure	16	0.076	4	0.30
9	There is a Master Plan for green open space development	14	0.076	3	0.27
					2.43
No	**Weakness**	**Amount**	**Weight**	**Rating**	**Score**
1	There is no specific regulation for green open spaces in Medan City	12	0.057	3	0.23
2	The current management of green open space in Medan City is not yet optimal	11	0.052	3	0.21
3	Public awareness is low, and people are not able to use the Detailed Spatial Plan website	12	0.057	3	0.23
4	Inadequate socialization of the detailed spatial plan regulation	12	0.057	2	0.23
5	The capacity of human resources in preparing the Land Procurement Planning Document is still weak, resulting in less effective land acquisition	11	0.052	3	0.21
6	The management of green open spaces is handled by the Housing, Settlements, Public Works, and Spatial Planning Department, and the Water Resources, Highways, and Construction Department, while the reporting process is directed to the Environmental Department, resulting in the management principles not being fully integrated	12	0.057	3	0.23
7	The land acquisition process is complicate	12	0.057	3	0.23
			1.00		**1.57**
					0.86

Referring to Table 1, the position of Medan City's public green spaces on the X-axis is determined by adding the total strengths and weaknesses. The strengths are valued at 2.43, while the weaknesses are at 1.57, resulting in a difference of 0.86. This indicates that Medan City's public green spaces are positioned positively on the X-axis. In other words, the strengths of these spaces are sufficient to outweigh the existing weaknesses.

After the scores and weights of internal factors are determined, the calculation of the weights and ranks of external factors is also carried out in the same way as by compiling IFAS, but strengths are replaced by opportunities, while weaknesses are replaced by threats. These calculations are presented in Table 2.

Table 3. External Strategic Factors (EFAS)
Synthesis of Opportunity (O) and Threat (T) (External Factors)

No	Opportunity	Amount	Weight	Rating	Score
1	Availability of funding from NGOs for the management of green open spaces in Medan City.	13	0.11	3	0.31
2	Numerous opportunities for land procurement	10	0.08	2	0.2
3	Commitment of the Ministry of Agrarian Affairs and Spatial Planning/National Land Agency to green open space management	14	0.12	3	0.35
4	The green open space in Medan City has the potential to serve as public spaces for fostering creativity among the people of Medan	13	0.11	3	0.32
5	Green open space in Medan City opens opportunities for the growth of the creative economy market	13	0.11	3	0.32
			1.00		1.5
	Threat	**Amount**	**Weight**	**Rating**	**Score**
1	Insufficient non-governmental funding for land acquisition	13	0.11	3	0.32
2	High interest from investors in Medan City Government assets, which could negatively impact the existence of green open space	9	0.07	2	0.22
3	The high population growth rate in Medan City	12	0.10	3	0.30
4	Increase in waste and illegal buildings	12	0.10	3	0.30
5	Public green open space utilized for purposes other than intended, along with the difficulty of land acquisition from the public	12	0.10	3	0.30
			1.00		1.44
			1		**0.06**

In Table 4, we can determine the position of Medan City's public green open spaces on the Y-axis by adding the values of opportunities and threats. With opportunities valued at 1.5 and threats at 1.44, the resulting sum is 0.06. This indicates that the public green open space of Medan City is situated on a positive point along the Y-axis. While this suggests that there are external threats to the development of Medan City's public green spaces, the presence of significant opportunities indicates that these threats could potentially be mitigated if the Medan City government effectively capitalizes on the available opportunities.

Drawing from Table 3, which outlines the internal strategic factors, and Table 4, which details the external strategic factors, it is evident that the public green open spaces in Medan City have considerable potential for improved management. This can be achieved by harnessing existing opportunities and strengths to address the identified weaknesses and threats. The weighting results from this analysis are visually represented in the SWOT analysis graph for the management of Medan City's public green open space, as shown in Figure 3.

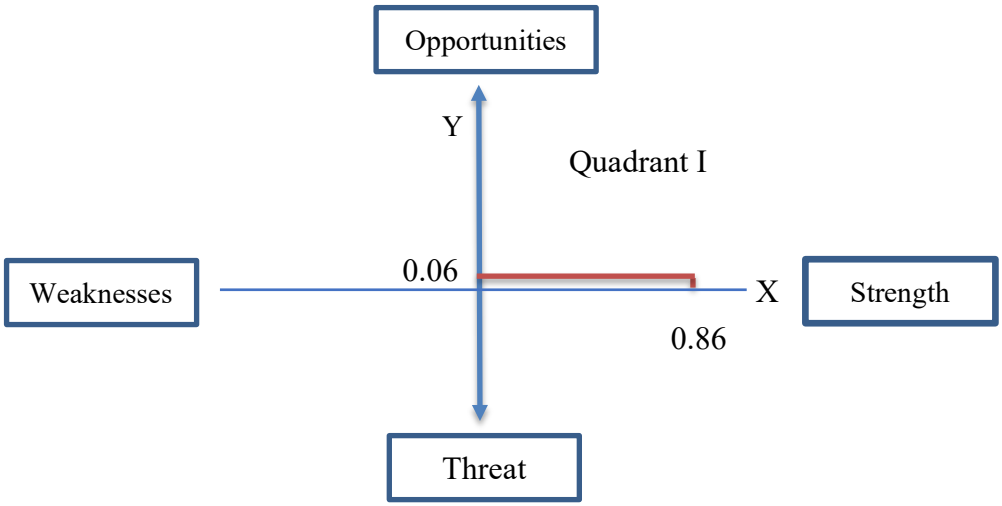

Figure 3. SWOT Analysis Of Public Green Space Management In Medan City

Based on Figure 3, the management of public green open spaces in Medan City falls within Quadrant I (positive, positive). According to Assauri (2013), Quadrant I has internal strengths with external opportunities, focusing on growth. This position indicates that strengths and opportunities have positive values when compared to weaknesses and threats. The Medan City Government has two strategies for the development and management of green open spaces: 1) Implementing Medan City's vision to protect the existence of green open spaces by collaborating with various private sector partners; and 2) Optimizing green open spaces by restoring those that have been repurposed and increasing the number of city parks in various areas according to needs (Lubis, 2016).

The development of public green spaces in Medan City has not yet been guided by the identification of specific areas, locations, and distribution, nor has it been implemented according to the desired standards. Consequently, it does not adequately support the balance and sustainability of the city's ecosystem. Ideally, the required area should be 7,953 hectares, but based on the population, it should be 846.87 hectares (Silalahi and Harianja, 2014).

Considering the internal and external factors of Medan City's public green spaces, a qualitative SWOT analysis was conducted by examining the relationship between these factors. This analysis aims to identify potential plans and actions that can be taken for the development of public green spaces in Medan City. The strategy formulation is presented in a SWOT analysis matrix, as shown in Table 4.

Table 4. The Strategy for Managing Green Open Space in Medan City

Internal / External	Strength (S)	Weakness (W)
	1. The City of Medan already has a Spatial Planning. 2. The achievement of the green open space area in Medan City is one of the 17 key performance indicators for the Mayor of Medan in Regional Regulation No. 7 of 2021 concerning the 2021-2026 Medium-Term Regional Development Plan. 3. The City of Medan already has a Detailed Spatial Plan. 4. The Medan City Government has sufficient budget for land management. 5. Regional Regulation No. 1 of 2022 concerning the Spatial Plan of Medan City. 6. Regional Regulation No. 2 of 2015 concerning the Spatial Plan of Medan City. 7. Environmental Protection and Management Plan and Regional Environmental Quality Index documents. 8. The commitment of the Mayor of Medan through the Mayor's commitment letter No. 650/9883 dated October 15, 2021. 9. Government involvement in organizing tree planting events.	1. There is no specific regulation for green open spaces in Medan City. 2. The current management of green open space in Medan City is not yet optimal. 3. Public awareness is low, and people are not able to use the Detailed Spatial Plan website. 4. Inadequate socialization of the detailed spatial plan regulation. 5. The capacity of human resources in preparing the Land Procurement Planning Document is still weak, resulting in less effective land acquisition. 6. The management of green open space by the Medan City Housing, Settlement, and Spatial Planning Office and the Medan City Water Resources, Public Works, and Construction Office is not yet integrated, while the reporting process is to the Medan City Environmental Office. 7. The land acquisition process is complicate.
Opportunities (O) 1. Availability of funding from NGOs for the management of green open spaces in Medan City. 2. Numerous opportunities for land acquisition. 3. Commitment from the Ministry of Agrarian Affairs and Spatial Planning/National Land Agency in the management of green open space. 4. The green open space in Medan City has the potential to serve as public spaces for fostering creativity among the people of Medan. 5. Green open space in Medan City opens opportunities for the growth of the creative economy market.	**Strategy SO** 1. Establish and preserve the function of protected areas 2. Increase the number of green open spaces with the existing budget, ensuring that at least 30% of the area consists of green open space, including 20% public green open space and 10% private green open space 3. Organize integrated efforts to preserve various existing protected areas. 4. Maintain areas that serve protective functions according to their ecosystem condition. 5. Restore and enhance the function of protected areas that have declined due to development activities, to achieve and maintain the balance of the regional ecosystem.	**Strategy WO** 1. Develop cooperation between neighbouring districts to enhance protective functions 2. Conduct socialization efforts to educate the public about the importance of green open spaces in Medan City. 3. Prohibit and enforce regulations against activities that could disrupt and damage protected areas. 4. Integrate productive cultivation activities that support the enhancement of public green open space. 5. Improve the performance of relevant agencies in green open space management to enhance cooperation with stakeholders and increase revenue from green open space management.
Threats (T) 1. Insufficient non-governmental funding for land acquisition. 2. High interest from investors in Medan City Government assets, which could negatively impact the	**Strategy ST** 1. Develop a short-term management program for technical procedures in the management of public green open spaces in Medan City. 2. Ensure that there is no overlap in the responsibilities for managing public green open space in Medan City.	**Strategy WT** 1. Maximize the socialization of the Detailed Spatial Plan regional regulation. 2. Provide education and socialization on the use of the Detailed Spatial Plan website for Medan City.

existence of green open spaces. 3. The high rate of population growth in Medan City. 4. Increased waste and illegal buildings. 5. Public green open spaces being used for purposes other than intended, along with the difficulty of land acquisition from the public.	3. Coordinate among local governments in the management and technical implementation of public green open space to enhance effectiveness. 4. Optimize the use of public green open space, improve active communication and information sharing, and maintain and establish the functions of public green open space in planning.	3. Maintain and evenly distribute public green open spaces, and enhance both the quantity (area) and quality of public green open space. 4. Enforce strict legal measures against those who repurpose public green open spaces, and develop programs by the government to address these issues.

As seen in Table 4., SWOT analysis for the management strategy of public green open spaces in Medan City provides a comprehensive overview of the city's strengths, weaknesses, opportunities, and threats. The analysis reveals that while Medan City has key strengths such as a Regional Spatial Plan, Government commitment, and an adequate budget, there are significant weaknesses including the lack of specific green open space regulations, suboptimal management, and low public awareness. Externally, the city has opportunities through Non-Government Organization (NGO) funding, land acquisition possibilities, and the potential of green open space as a public space for creativity and economic development. However, threats such as insufficient funding for land acquisition, rapid population growth, and misuse of green open space present challenges.

The results of this study are in line with the results of research (Siregar et al., 2024) which says that the condition of green open space management in the city of Medan has several weaknesses, namely (1) the involvement of the private sector is still lacking in achieving the 30% green open space target. (2) data and information that includes data on the distribution and condition of current green spaces, existing plant and animal species, and the use of green spaces by the community is not optimal. (3) Community participation in the fulfilment of green open space is still minimal. (4) Implementation, Monitoring, and ongoing evaluation of the effectiveness of green spaces are still not well underway. (5) Integration with other planning between agencies has not been well coordinated so that there is often a miss communication.

The strategic directions proposed include leveraging the city’s strengths to preserve and expand green open space, collaborating with neighbouring districts, enhancing public awareness, and addressing weaknesses through better management, regulation, and enforcement. The implementation of these strategies will help Medan City achieve its goal of sustainable urban development, environmental balance, and improved quality of life for its residents.

To effectively manage public green open spaces in Medan City and overcome the identified challenges, the following strategic management suggestions are proposed:

a) Strengthen Policy and Regulatory Frameworks: Develop and implement specific regulations for public green open space management. These should include clear guidelines for land use, protection, and maintenance of green spaces. Reinforce existing laws and ensure comprehensive enforcement to prevent misuse and unauthorized conversion of public green open space.
b) Enhance Public Awareness and Engagement: Conduct regular outreach programs to raise awareness about the importance of public green open space Use media, public campaigns, and educational programs to involve the community in the preservation and utilization of green spaces. Encourage community-driven initiatives like tree planting and public green open space maintenance.
c) Optimize Cross-Sector Collaboration: Improve coordination among government departments, NGOs, private sectors, and local communities. Establish a multi-stakeholder task force to streamline public green open space management, ensuring responsibilities are clearly defined and executed. Collaboration with neighbouring districts will also help expand and protect public green open space across regional boundaries.
d) Increase Funding and Resource Allocation: Secure additional funding from both government and private sectors. Leverage NGO support and explore public-private partnerships to fund public green open space projects. Allocate a higher portion of the municipal budget to the maintenance and expansion of green spaces.
e) Promote Sustainable Urban Planning: Integrate public green open space management into the broader urban planning and development framework. Ensure that the expansion of green spaces aligns with the

city's growing population and urbanization. Prioritize green infrastructure in new developments and rehabilitation projects.

f) Leverage public green open space for Economic Growth: Develop public green open space as multifunctional spaces that contribute to the local economy. Designate areas for creative and cultural events, eco-tourism, and outdoor activities that promote environmental education and community engagement, while also generating economic opportunities.
g) Monitor and Evaluate Public Green Open Space Management: Implement a regular monitoring and evaluation system to assess the effectiveness of public green open space management strategies. Use Geographic Information Systems (GIS) and other tools to track changes in RTH distribution, quality, and usage, allowing for data-driven decision-making and timely adjustments.
h) Encourage Sustainable Practices: Integrate eco-friendly practices in public green open space management, such as rainwater harvesting, native plant cultivation, and renewable energy sources. Promote urban gardening and community greening projects that enhance biodiversity while offering residents opportunities to contribute to the sustainability of their environment.

By addressing these key areas, Medan City can strengthen the management of its public green open spaces, ensuring they are preserved, effectively utilized, and contribute to the city's sustainable development and improved quality of life.

4. Conclusion

The management of public green open spaces in Medan City presents both significant challenges and opportunities. Despite the city's strengths, including a Regional Spatial Plan and government commitment, the area of public green spaces still falls far short of the 30% mandated by Indonesian law. Current management is hindered by the lack of specific regulations, suboptimal implementation, and low public awareness, as well as threats like rapid population growth and the misuse of green spaces.

SWOT analysis reveals that Medan City's public green open spaces are in a favorable position for growth, given the external opportunities and internal strengths. However, the city must address its weaknesses, including lack of coordination among agencies and insufficient funding for land acquisition. The opportunities provided by NGO funding, land acquisition potential, and the economic and cultural value of green spaces offer a path forward if managed effectively.

To improve the management of green spaces, strategic initiatives are required, including the development of stronger regulatory frameworks, enhanced public engagement, cross-sector collaboration, and sustainable urban planning. By leveraging green spaces as multifunctional public spaces, Medan can also foster economic growth and improve the quality of life for its residents. With better coordination, policy enforcement, and resource allocation, Medan City can significantly enhance its public green open spaces, contributing to sustainable urban development and a balanced ecosystem for its growing population

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