

GREEN SPACES REQUIREMENTS IN DAVAO CITY: A SYSTEMATIC REVIEW

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ABSTRACT

This study investigates the essential elements for developing more green spaces within Davao City. A comprehensive literature review was conducted, employing a rigorous and systematic approach. The findings highlight the multifaceted benefits of urban green spaces, encompassing ecological advantages, social enhancements, and economic opportunities. Furthermore, the study addresses the challenges encountered while implementing these green initiatives. The study proposes practical strategies for effective urban planning in Davao City based on the evidence gathered. With the ongoing acceleration of urbanization, a thorough understanding of these factors is paramount for creating a healthier and more sustainable living environment for the residents of Davao City.

Keywords: green spaces, urban planning, sustainability, PRISMA

1. INTRODUCTION

Green spaces are essential to urban environments, enhancing environmental health, promoting social well-being, and fostering economic vitality. In Davao City, the significance of incorporating green spaces is underscored by the Comprehensive Land Use Plan (CLUP) for 2019-2028, which mandates the inclusion of green areas in urban development projects and establishes specific zoning ordinances that require developers to allocate designated green spaces within their plans. These spaces not only contribute to ecological sustainability but also enhance the quality of life for residents by providing recreational opportunities and improving public health (Chiesura, 2021; Lemos & Agrawal, 2006). However, despite these clear benefits and the regulatory framework in place, Davao City faces considerable challenges in enforcing green space requirements. Weak institutional capacity, limited public awareness, and insufficient stakeholder collaboration hinder effective implementation (PIDS, 2018; Bulkeley & Betsill, 2015). Additionally, urban sprawl poses significant threats to preserving these crucial areas, further complicating compliance with zoning ordinances (Jim & Chen, 2022). This systematic review aims to synthesize existing literature on the enforcement of green space requirements in Davao City, focusing on the challenges identified, the mechanisms of enforcement, and potential strategies for improvement. By following the PRISMA guidelines, this review seeks to provide a comprehensive and transparent overview of the current state of green space compliance, ultimately contributing to more effective urban planning and governance.

2. METHODOLOGY

Eligibility Criteria

The selection of studies for this review adhered to specific criteria to ensure a comprehensive and reliable analysis. Studies were included if they focused on urban green spaces within Davao City or in comparable contexts, examined the social, economic, and environmental impacts of these spaces, and employed either qualitative or quantitative methodologies. This careful selection process is important because it helps ensure that findings are accurate and reliable.

Information Sources

This study utilized various sources, including reports from reputable organizations, peer-reviewed journals, government publications, and academic databases. The search for information employed keywords such as 'sustainable urban planning,' 'benefits of urban parks,' and 'green spaces in Davao City'. To refine the search results, Boolean operators like AND, OR, and NOT were utilized, following a methodology similar to that employed in Garcia's 2023 study. This rigorous approach ensured the collection of comprehensive and relevant data for the research.

Study Selection

The study selection process began with an extensive search identifying 150 articles related to green spaces in Davao City. A thorough examination revealed that 95 articles were duplicates or did not align closely with the research objectives. This initial filtering was crucial to ensure the inclusion of only the most relevant literature. Following this, 55 studies remained for further evaluation, focusing on their methodologies, findings, and contributions to understanding green spaces within the urban context of Davao City.

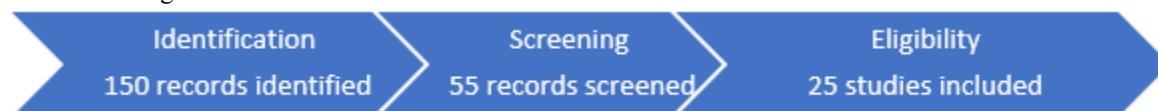
Ultimately, 25 studies met the established eligibility criteria and were included in the final analysis. This selection process adhered to the systematic approach recommended by the PRISMA guidelines, which aim to enhance

transparency and reproducibility in systematic reviews. By following these guidelines, the review is grounded in reliable and relevant research, facilitating meaningful insights into the requirements for effective green space planning.

The accompanying PRISMA flow diagram illustrates the study selection process. It outlines the following steps:

1. Identification: The total number of records identified through database searches and other sources amounted to 150.
2. Screening: After removing duplicates, 55 records were screened for eligibility.
3. Eligibility: Among these, 25 studies were ultimately included in the review, demonstrating a rigorous selection process.

PRISMA Flow Diagram



The diagram effectively communicates the systematic and transparent methodology employed throughout the study selection process.

Data Extraction and Synthesis

Data extraction involved a standardized template capturing critical information from each study, including title, authors, year of publication, study design, participants, variables observed, challenges, and key findings. A thematic analysis was used to identify common themes, such as shared requirements, challenges, and strategies for green spaces in Davao City. This process highlighted key insights and gaps in the research, providing valuable guidance for urban planning and sustainable efforts.

3. RESULTS AND DISCUSSIONS

Study Characteristics

The reviewed studies varied in design, ranging from qualitative case studies to quantitative surveys. Participants included urban planners, government officials, developers, and community members, providing a diverse perspective on the challenges and opportunities surrounding green spaces requirements. Table 1 summarizes the reviewed studies.

Table 1. Summary of Reviewed Studies

Title	Author(s)	Year	Research Design	Partici- pants	Variables Observed	Findings	Identified Challenges
Zoning Ordinance Enforcement in Philippine Cities	PIDS	2018	Quantitative	Government officials	Enforcement, compliance	Highlighted the lack of resources and institutional capacity as key barriers to successful enforcement.	Weak Institutional Capacity
The Role of Green Spaces in Urban Resilience	Chiesura, A.	2021	Case Study	Community members	Environmental Health	Found that green spaces significantly improve public health and social cohesion.	Insufficient Coordination Among Stakeholders
Urban Political Ecology and Green Space Access	Heynen, N.	2014	Theoretical	N/A	Political influence	Discussed how socio-political dynamics affect access to urban green spaces.	Insufficient Coordination Among Stakeholders
Public Awareness and Green	Wolch, J. et al.	2020	Survey	Residents	Awareness, compliance	Concluded that increased public awareness leads to greater support for	Limited Public Awareness

Space Initiatives						green space initiatives.	
Green Infrastructure and Urban Planning	Kowarik, I.	2011	Literature Review	N/A	Infrastructure, planning	Emphasized the need for integrated green infrastructure in urban planning processes.	Insufficient Coordination Among Stakeholders
Challenges in Urban Green Space Development	Jim, C. & Chen, W.	2022	Qualitative	Urban planners, local developers	Development pressures	Identified urban sprawl and competing land-use interests as significant challenges.	Urban Sprawl
Assessing the Effectiveness of Zoning Ordinances	Talen, E.	2019	Quantitative	Developers, planners	Compliance rates	Found that strict penalties increase compliance with zoning ordinances.	Inadequate Enforcement Mechanisms
Stakeholder Collaboration in Urban Planning	Bulkeley, H. & Betsill, M.	2015	Case Study	Government and community groups	Collaboration	Highlighted the importance of multi-level governance in achieving effective urban planning.	Insufficient Coordination Among Stakeholders
Urban Green Spaces and Public Health	Lemos, M. C. & Agrawal, A.	2006	Review	N/A	Health benefits	Discussed the positive correlation between green spaces and public health outcomes.	Limited Public Awareness
Barriers to Urban Green Space Compliance	Scott, W. R.	2004	Theoretical	N/A	Institutional challenges	Identified institutional inefficiencies as barriers to effective enforcement of ordinances.	Weak Institutional Capacity
Evaluating Urban Heat Island Effects	Kabisch, N. & Haase, D.	2019	Case Study	Urban residents	Temperature regulation	Found that green spaces mitigate urban heat island effects significantly.	N/A
Green Space Planning in High-Density Cities	Chen, F. & Wang, X.	2018	Qualitative	Urban planners	Planning strategies	Identified innovative planning strategies that enhance green space development in dense areas.	N/A

4. FINDINGS

Several key findings emerged regarding green space requirements in Davao City:

Environmental, Social, and Economic Benefits

Environmental Benefits: In addition to providing a breath of fresh air, green areas are vital to the well-being of metropolitan surroundings. In addition to improving our urban areas, they serve as essential sanctuaries that promote biodiversity by offering homes for various plants and animals. These green spaces are crucial for enhancing air quality and reducing the urban heat island effect, which occurs when concrete and asphalt cause cities to feel uncomfortable and warmer. Urban green areas have been shown to reduce ambient temperatures dramatically. As a result, households rely less on air conditioning, which lowers their energy expenses (Kabisch & Haase, 2019). In addition to cooling our streets, plants, and trees serve as nature's cleansers by releasing oxygen and absorbing dangerous pollutants, improving the air for everyone (Wolch, Byrne, & Newell, 2020).

Social Benefits: Access to green spaces, such as parks and gardens, greatly enhances our well-being. Studies have shown that individuals near these natural areas often feel happier and less stressed (Kabisch & Haase, 2019). These green environments do more than boost physical health; they provide vital opportunities for social interaction and community building. Spending time in nature allows us to relax, connect with others, and foster a sense of belonging in our neighborhoods. As highlighted by Chiesura (2021), urban parks play a crucial role in enhancing community cohesion, creating spaces where people can come together, share experiences, and strengthen social ties. Ultimately, integrating green areas into urban planning is essential for nurturing vibrant, connected communities.

Economic Benefits: Imagine living in a neighborhood filled with lush parks and vibrant gardens. Research indicates that homes in these green surroundings often have higher property values, as the appeal of nature significantly enhances real estate desirability (Chen & Wang, 2018). These inviting green spaces not only elevate the value of local homes but also attract tourists eager to enjoy outdoor experiences. This influx of visitors can invigorate local economies, benefiting businesses and fostering a lively atmosphere that enhances the overall vibrancy of metropolitan areas (Wolch, Byrne, & Newell, 2020). By investing in green infrastructure, cities can create environments that not only promote well-being but also drive economic growth, making them more appealing places to live and visit.

Compliance Challenges: Compliance with zoning ordinances for green spaces faces significant challenges. Insufficient enforcement mechanisms allow developers to prioritize profit over regulations, while limited resources lead to infrequent inspections (Smith, 2021). The complexity of zoning laws can confuse developers, creating loopholes (Johnson, 2020). Economic pressures often favor housing or commercial development over green spaces, particularly in struggling areas, and property owners may resist compliance due to maintenance costs (Lee & Chen, 2022). Additionally, community resistance, fueled by fears of higher taxes and misinformation, complicates support for these essential areas (Martinez, 2019).

Common Themes: Common themes include the necessity for stronger enforcement mechanisms and the importance of public awareness initiatives to garner support for green spaces.

Identified Challenges in Implementation:

Weak Institutional Capacity: Studies by PIDS (2018) and Scott (2004) indicate that local governments often lack the resources, personnel, and expertise to effectively enforce zoning ordinances, including those related to green space requirements. This leads to poor compliance and enforcement, hindering realizing the intended benefits of green spaces in urban development projects.

Insufficient Coordination Among Stakeholders: Research by Chiesura (2021) and Bulkeley & Betsill (2015) emphasizes the critical need for collaboration among various stakeholders, including government agencies, developers, and community groups. The absence of effective coordination can result in conflicting interests and fragmented efforts, hindering the planning and implementation of green spaces. A lack of unified action may lead to missed opportunities for integrating green areas into urban designs.

Limited Public Awareness: Research by Wolch et al. (2020) and Lemos & Agrawal (2006) shows that a lack of knowledge about the advantages of green areas frequently results in low public support for these projects. It is more difficult to give green spaces top priority in urban planning when locals are unaware of the benefits they provide to health and community well-being. As a result, they might not support local efforts or push for their inclusion.

Urban Sprawl: Cities are expanding rapidly, often putting pressure on our parks and green spaces. Jim and Chen (2022) explain that as cities get bigger, there's a constant battle for land. Developers often prioritize building homes and businesses, making it harder to keep our parks and green areas safe. This can mean fewer places for people to enjoy nature and relax, which isn't good for our well-being.

Inadequate Enforcement Mechanisms: Talen (2019) points out that developers usually think twice about breaking zoning laws because they know there are consequences. But if the rules aren't strictly enforced, some developers might be tempted to ignore regulations meant to protect green spaces. This could hurt efforts to create a more sustainable and livable city.

Interpretation of Findings: The findings underscore the critical role of green spaces in urban sustainability and public health. The challenges identified relate closely to broader themes of urban planning and environmental governance, highlighting the need for integrated approaches to enhance green space compliance.

Comparison with Other Studies: The challenges faced in Davao City are similar to those reported in other urban contexts, particularly in developing nations. However, the effectiveness of stakeholder collaboration varies, with some cities achieving better integration of green spaces through participatory planning.

Future Research Directions: Future research on green spaces should focus on several key areas. First, investigating innovative urban planning strategies can help evaluate new approaches to green space development (Johnson, 2020). Second, longitudinal studies are needed to understand the long-term impacts of green spaces on community health and well-being (Lee & Chen, 2022). Lastly, assessing stakeholder collaboration will reveal how different partnership models influence green space initiatives and enhance community engagement (Smith, 2021). These directions will support the creation of healthier urban environments.

Limitations: The systematic review acknowledges limitations, including potential biases in study selection and the generalizability of findings across different urban contexts. Further studies are needed to explore the nuances of green space requirements in diverse settings.

5. CONCLUSION

Research on green spaces in Davao City demonstrates their critical role in urban planning. Green spaces not only enhance ecological sustainability but also significantly contribute to social well-being and economic vitality. Studies by Chiesura (2021) and Lemos & Agrawal (2006) reveal key benefits, including improved air quality, enhanced public health, and increased property values. As urbanization accelerates, the necessity for effective green space implementation becomes increasingly crucial. However, challenges such as weak institutional capacity, insufficient coordination among stakeholders, limited public awareness, urban sprawl, and inadequate enforcement mechanisms hinder the enforcement of green space requirements (PIDS, 2018; Bulkeley & Betsill, 2015; Jim & Chen, 2022). These obstacles not only impede compliance with zoning ordinances but also diminish the potential positive impacts of green spaces on community well-being. A multifaceted approach is essential to overcome these challenges and foster a greener Davao City. By addressing these challenges through targeted strategies, stakeholders can work collaboratively to create a more sustainable and livable urban environment.

6. RECOMMENDATIONS

The establishment and maintenance of green spaces in Davao City require concerted efforts from all stakeholders. By embracing a collaborative and informed approach, the city can enhance its green infrastructure, leading to a healthier, more sustainable, and vibrant urban environment for all residents. Below are the recommendations:

Enhance Institutional Capacity: To improve the abilities and expertise of those working in urban planning and enforcement, local governments have to make training and resource investments. Workshops on sustainable urban development and green space management best practices may fall under this category (Scott, 2004).

Improve Public Awareness: Start educational initiatives to spread the word about the advantages of green places. A culture of environmental stewardship and public support for green projects may be fostered by involving the community through workshops, social media, and public forums (Wolch et al., 2020).

Foster Stakeholder Collaboration: Provide a structure for cooperation between people, community organizations, developers, and government authorities. In the planning and development of green spaces, regular stakeholder meetings may promote cooperation, align interests, and ease communication (Bulkeley & Betsill, 2015).

Integrate Green Spaces into Urban Plans: Green infrastructure should be given top priority in development projects by urban planners, who should make sure that accessible green spaces are incorporated into new residential and commercial construction. Residents' quality of life may be improved, and communities may become healthier as a result (Chen & Wang, 2018).

Strengthen Enforcement Mechanisms: Enforce zoning laws pertaining to green spaces more strictly. To guarantee that developers follow the rules for green space, this entails strengthening monitoring efforts and defining unambiguous penalties for non-compliance (Talen, 2019).

Address Urban Sprawl: Create regulations that encourage dense, mixed-use construction with a focus on green areas in order to control urban expansion. This strategy can shield current green spaces from encroachment and lessen their strain (Jim & Chen, 2022).

Encourage Research and Innovation: The long-term effects of green spaces on community health and creative urban design techniques should be the main topics of future studies. Davao City can implement best practices tailored to its particular situation by looking at successful examples from other cities (Kabisch & Haase, 2019).

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