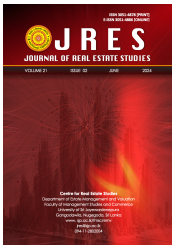

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Defining Urban Green Spaces in the Colombo District across Multiple Uses

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ABSTRACT

Urban green spaces play a major role in the congested urban environment, which helps to minimize the ecological imbalance of the urban environment. Urban green spaces help to reduce stress, improve mood, promote physical activity, foster social cohesion, reduce air and water pollution etc. There are no static definitions to explain urban green space and different countries define urban green space based on the availability of their green resources. In Sri Lanka also no clear definition of urban green space. Colombo District of Sri Lanka is a highly urbanized and populated district, so land demand is very high for various uses of built-up areas. As a result, existing green spaces are depleting and it needs to emphasize strategic planning and management. However Sri Lanka does not have a standardized definition of green space, and it is one of the major obstacles to developing land use planning in the urban areas related to green spaces. This study aims to formulate an informative definition of green space for the Colombo District through the review of global and local definitions, followed by thematic analysis and expert validation. The proposed definition describes green spaces as natural and man-made vegetated areas in diverse landscapes that fulfil multifunctional roles, enhancing environmental quality and community well-being.

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1. INTRODUCTION

Green spaces are vegetated areas designated for recreational and environmental purposes in both urban and rural contexts. These include parks, gardens, playgrounds, and nature reserves. They offer vital benefits such as enhancing air quality, providing recreational opportunities, supporting biodiversity, and promoting community well-being. Urban Green Space is defined as areas predominantly covered by vegetation, including parks, gardens, forests, wetlands, etc. Those areas serve multifunctional roles in enhancing the quality of life for inhabitants while

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mitigating the adverse impacts of urbanization and climate change (Bowler et al., 2010).

Over the past decades, urbanization has accelerated worldwide, leading to the increase of the built environment and the depletion of natural ecosystems. In response, policymakers, urban planners, and researchers have recognized the significance of green spaces in counteracting the detrimental effects of urbanization on both human well-being and ecological integrity (Gomez-Baggethun et al., 2013).

The absence of an internationally standardized definition for green spaces has resulted in various countries having their own definitions, yet Sri Lanka currently lacks a specific definition for green spaces.

The benefits of green spaces extend beyond mere aesthetic appeal; they play a critical role in fostering physical and mental health. In 2015 Berg et al, indicated that access to green spaces is associated with reduced stress, improved mood, and enhanced cognitive function. Moreover, green spaces offer recreational opportunities, promote physical activity, and facilitate social cohesion by providing venues for community gatherings and leisure activities (Maas et al., 2006). Furthermore, green spaces contribute substantially to ecological sustainability by supporting biodiversity, mitigating air and water pollution, and regulating microclimates (Gomez-Baggethun et al., 2013). As ecological hotspots, these areas provide habitats for diverse flora and fauna, thereby preserving biodiversity and ecological balance within urbanized landscapes. Despite the recognized importance of green spaces, their availability, accessibility, and quality vary significantly across different geographical locations and socioeconomic strata (Mitchell and Popham, 2007). Consequently, disparities in green space distribution can exacerbate social inequalities and exacerbate health disparities among urban populations (Dadvand et al., 2016).

Institutions responsible for the management and maintenance of green spaces in the Colombo District of Sri Lanka include governmental bodies. Such as the local authorities in the Colombo District, Central Environmental Authority, and Urban Development Authority (UDA). The local authorities oversee the management of public parks and recreational areas within the city, ensuring their upkeep and accessibility to residents. Similarly, the other responsible institutions manage botanical gardens and nature reserves, preserving biodiversity and promoting environmental education and research. Non-governmental organizations (NGOs) and community-based initiatives also play a significant role in green space conservation and enhancement efforts.

Even though the efforts of various stakeholders, the availability of green spaces in the Colombo District remains inadequate to meet the growing needs of urban residents. The residential demand for suburban areas puts pressure on existing green spaces, leading to overcrowding and degradation of natural habitats. The increasing demand for land for residential and commercial development further reduces the area available for green spaces, making worse the scarcity of recreational and ecological resources in urban areas. Moreover, socio-economic disparities and unequal access to green spaces contribute to environmental injustice, disproportionately affecting marginalized communities who lack access to quality green spaces and suffer from the adverse effects of environmental degradation (Mitchell and Popham, 2007). Addressing these challenges requires a holistic approach that integrates urban planning, environmental management, and community engagement to promote

sustainable development and equitable access to green spaces for all residents of the Colombo District.

In Sri Lanka, not having a clear definition of green spaces makes it difficult to plan and manage these green space areas effectively. Senarath and Padmalal (2019) highlight the pressing need for a precise definition, emphasizing the ambiguity in policy formulation and implementation resulting from the absence of clarity on what constitutes a green space. Without a clear definition, stakeholders may struggle to identify and prioritize areas for conservation, recreation, and urban greening initiatives, impeding efforts toward sustainable development. Hence, there is an urgent imperative to formulate an informative definition of green space that encompasses the diverse range of natural and semi-natural landscapes found across Sri Lanka. Therefore, this paper aims to do an analytical review on defining Urban Green Spaces in the Colombo District across Multiple Uses. Therefore, this paper aims to do an analytical review of defining Urban Green Spaces in the Colombo District across Multiple Uses.

2. LITERATURE REVIEW

2.1 Green Space

Green Spaces are vegetated areas that are natural or man-made. Those are, also known as green spaces, open spaces, or urban parks, encompass a variety of areas within urban environments that are predominantly vegetated and serve multifaceted purposes for communities (Dallimer et al., 2012; Gascon et al., 2015). The concept of green space has garnered increasing attention and significance in urban planning, environmental studies, public health, and social sciences over recent decades (Gascon et al., 2015).

Green spaces encompass a wide range of forms, including public parks, community gardens, urban forests, green corridors, and vacant lots converted into green areas. They vary in size, design, vegetation composition, and management practices, catering to the diverse needs and preferences of urban residents (Markevych et al., 2017). Despite this diversity, green spaces share common attributes such as vegetation cover, accessibility, and potential for human interaction, all of which contribute to their overall benefits for urban ecosystems and inhabitants (Poulsen et al., 2015).

The definition of a green space system has long been debated. A variety of definitions, including the Horticultural Greenland System, Urban Greenland System, Ecological Greenland System, Urban Green Space, and Green Open Space, have been presented by various disciplines from their own professional perspectives (Manlun, 2003). Further, urban green space is defined differently by different people, frequently depending on the specific circumstances.

Baycan et al. (2009) broadened the scope by including both public and private spaces covered with greenery. This definition acknowledges that urban green spaces may not always be publicly owned but can still provide benefits to urban residents. It underscores the need to consider both publicly accessible parks and privately maintained green areas within urban planning and development.

Jim and Chen (2003) and Baycan et al. (2009) emphasize the semi-natural character of urban green spaces, which may include both managed parks and gardens as well as smaller vegetated areas scattered throughout urban landscapes. These definitions acknowledge that urban green spaces may vary in size and level of management but still play important roles in providing greenery within cities.

Tzoulas et al. (2007) highlight the interconnectedness of urban green spaces with natural and man-made ecological systems. This definition emphasizes the importance of considering urban green

spaces as part of a larger ecosystem, with linkages to surrounding natural areas and ecological processes. Kong & Nakagoshi (2006) underscore the diversity of urban green spaces, which may include not only parks and gardens but also agricultural areas, private green spaces, and other types of greenery within urban environments. This definition recognizes that urban green spaces may take various forms and serve different functions, depending on local context and land use patterns.

Tavernia & Reed (2009) incorporate various types of open land, cropland, and pasture into the definition of urban green space, recognizing that urban areas may include a mix of natural and agricultural landscapes. This definition highlights the importance of considering urban green spaces in the context of broader land use patterns and agricultural practices within urban environments. Schipperijn et al. (2010) offer a comprehensive definition focusing on the accessibility and vegetation cover of urban green spaces. They emphasize that these spaces are publicly owned and accessible to all, ranging from expansive parks to smaller nature areas within urban environments. This definition highlights the importance of ensuring that urban green spaces are available for everyone to enjoy, regardless of socioeconomic status.

Gentin (2011) emphasizes the substantial green elements within urban areas, recognizing that even small patches of greenery can have significant impacts on the overall quality of urban environments. This definition underscores the importance of considering urban green spaces in the context of broader urban landscapes and land use patterns. Boone-Heinonen et al. (2010) and Heckert (2013) describe urban green space as recreational or undeveloped land predominantly covered with vegetation, recognizing that these spaces may serve as important venues for outdoor recreation and leisure activities within urban environments.

Ikiugu et al. (2011) categorize outdoor spaces with significant vegetation cover as green spaces, recognizing that these areas provide important opportunities for outdoor recreation and relaxation within urban environments. This definition underscores the importance of preserving and enhancing green spaces as vital components of urban landscapes.

Almanza et al. (2012) quantify greenness based on the level of vegetation cover within urban areas, recognizing that urban green spaces may vary in their degree of greenery. This definition acknowledges that some urban areas may have more extensive vegetation cover than others and that this can impact the overall quality of the urban environment.

Jaafar et al (2012) expand the definition to include any vegetated land within urban built-up areas, regardless of whether it is publicly accessible. This definition recognizes that urban green spaces may encompass a wide range of areas, from formal parks to informal green patches, all of which contribute to the overall greenery of urban environments.

The European Commission (2013) defines urban green space as a strategically planned network of high-quality natural and semi-natural areas designed to deliver ecosystem services and protect biodiversity in both rural and urban settings. This definition underscores the importance of considering urban green spaces as part of larger green infrastructure networks that provide essential benefits to both people and the environment. Baggethun et al. (2013) emphasize the multifunctional nature of urban green spaces, highlighting their role in providing opportunities for physical exercise, recreation, and various other benefits to people. This definition recognizes that urban green spaces serve diverse purposes beyond just providing aesthetic value and contributing to the overall well-being of urban residents.

Lee et al. (2015) extend the definition to

include permeable hard-surface areas that are predominantly covered with soft surfaces such as soil, grass, shrubs, and trees. This definition highlights the importance of considering not only traditional green spaces like parks but also green infrastructure elements such as green roofs and permeable pavements in urban environments.

Emechebe (2020) provides a detailed description emphasizing the natural elements within urban built environments. This definition underscores the importance of both natural and artificially cultivated greenery, such as trees, shrubs, flowers, and grass, in enhancing the urban landscape. It recognizes the role of urban green spaces in softening the built environment and providing pockets of nature within cities.

Swanwick et al. (2023) describe land in urban areas with open soil surfaces partly or fully covered by vegetation, recognizing that urban green spaces may include both formal parks and informal green areas within urban environments. This definition highlights the importance of considering a range of vegetated land covers in urban planning and development efforts.

Pena-Salmon et al. (2014) define urban green space as any public or private open area within urban or suburban settings predominantly covered with vegetation, serving environmental, social, or productive functions. This definition recognizes the diverse roles that urban green spaces play in enhancing urban environments and meeting the needs of urban residents. Handley et al. (2003) concluded that urban green space should be managed by a hierarchical size and distance criteria using a model called "ANGSt". This model requires a number of different criteria which should be satisfied by the green spaces, such as residents should live in areas that are 300m away from natural green spaces of at least 0.02km2 in size and should provide at least 0.01km2 of natural space for 1000 residents (Handley et al., 2003).

The definitions of urban green space used by Sri Lankan researchers in their studies highlight the diversity of perspectives and the implications for urban development and sustainability.

Silva et al. (2018) define urban green spaces in Sri Lanka as comprising public parks, gardens, and other vegetated areas within urban environments. This definition emphasizes the importance of publicly accessible green spaces for recreational and environmental purposes. In contrast, Fernando and Gunawardena (2017) conceptualize urban green spaces in Sri Lanka as multifunctional areas serving various social, cultural, and economic purposes, including leisure, education, and cultural activities. Their definition highlights the diverse roles that green spaces play in enhancing community well-being and quality of life.

Perera et al. (2019) adopt a broader perspective, considering not only public parks and gardens but also private gardens, roadside vegetation, and other green areas within urban settings as urban green spaces. This inclusive definition recognizes the significance of both formal and informal green spaces in urban landscapes and underscores the importance of equitable access to greenery for all residents.

Furthermore, Jayasinghe et al., 2018 categorize urban green spaces in Sri Lanka into distinct functional types, including recreation green spaces such as parks, gardens, and outdoor sports facilities, private green spaces within housing plots, and productive green spaces utilized for agricultural purposes. They also acknowledge the importance of burial grounds, school playgrounds, institutional grounds, semi-natural habitats, and linear green spaces along canal and river banks in contributing to the urban green infrastructure of Sri Lanka. Developing a definition of green space that effectively

encompasses and accommodates various uses involves considering how these areas can simultaneously serve purposes such as recreation, conservation, biodiversity promotion, and community well-being.

2.2 Characteristics of Urban Green Space

Upon reviewing empirical studies, several key characteristics of urban green spaces emerge prominently. These characteristics encompass various dimensions, each offering insights into the multifaceted nature of these spaces and their significance in urban contexts.

Table 1 - Characteristics of the Green Spaces

Characteristics	Description	Key References
Physical	Size, shape, accessibility, and vegetation cover. Larger spaces offer recreational opportunities and ecosystem services.	Maruthaveeran et al. (2014), Pauleit et al. (2005)
Ecological	Biodiversity, habitat quality, and ecosystem functionality. Supports urban biodiversity conservation and ecological connectivity.	Nielsen et al. (2006), Kabisch et al. (2016)
Social	Social gathering places, cultural heritage sites, and community hubs. Foster social cohesion and cultural identity.	Soga et al. (2014), Dempsey et al. (2012)
Health-Related	Promotes physical activity, reduces stress, and improves mental health. Contributes to public health and well-being.	Lee and Maheswaran (2011), Gascon et al. (2015)
Spatial Distribution	Influences accessibility and equitable provision across neighborhoods. Addresses disparities in green space access.	Wolch et al. (2014), Rigolon et al. (2018)
Management and Governance	Stakeholder engagement, participatory decision-making, and partnerships are critical for sustainability and resilience.	Kabisch et al. (2019), Bulkeley et al. (2015)

2.3 Ecocentrism and Anthropocentrism

Environmental ethics explores the relationship between humans and the natural world, often framed through competing philosophical viewpoints.

Anthropocentrism posits that only human beings possess inherent moral values. According to some perspectives, environmental policies should be assessed purely on their effects on humans (Baxter, 1974; Norton, 1988). Lynn (1967) introduced the term "anthropocentric" and associated it with the belief that humans have the right or even the duty to dominate the earth, thereby establishing a core argument in environmental ethics.

Ecocentrists broaden their perspective to encompass ecological collectives, such as species, populations, and biotic communities (Michael & Ryan, 2015). Ecological totalitarianism recognizes two categories of beings as morally significant: the biosphere as a unified entity and the expansive ecosystems within it. Animals, including humans, along with plants, rocks, molecules, and other components of these ecosystems, are not individually considered morally significant. Their relevance lies solely in their contribution to the preservation of the larger whole to which they belong.

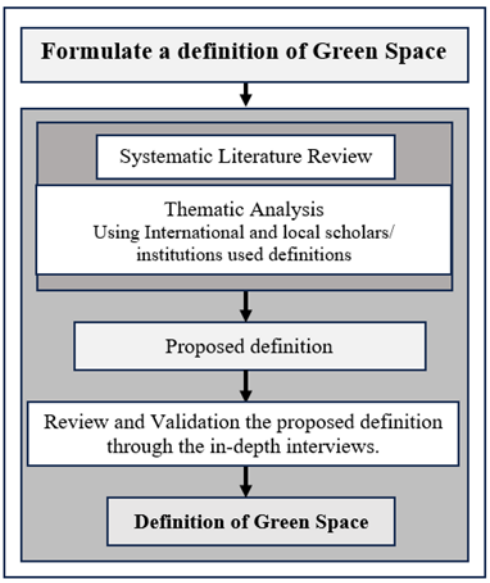
3. METHODOLOGY

The method used primary and secondary data and commenced with a comprehensive collection of 15 Asian definitions, local scholars' perspectives, and institutional definitions from scholarly literature and academic sources. Thematic analysis was then applied to these definitions to identify recurring themes, concepts, and key elements inherent in the descriptions of green space. Thematic analysis involves systematically coding and categorizing the definitions to extract essential

components that inform the formulation of an informative definition for Green Space.

To refine and validate the suggested definition of green space, eight in-depth interviews were conducted. The sampling method used was snowball sampling, where initial participants who were experts in urban planning, academia, and environmentalism were asked to recommend other knowledgeable professionals, thereby expanding the pool of interviewees through their networks. Incorporating the insights and feedback gathered from these interviews, the proposed definition was continually refined. The final formulation of the definition aimed to achieve a balance between comprehensiveness, clarity, and contextual relevance.

Figure 1: Methodology



4. DISCUSSION AND FINDINGS

To construct an informative definition for "Green Space," definitions from international scholarly studies and Sri Lankan definitions from local research have been utilized. These definitions were collected from Asian studies including China, Japan, India, Malaysia, Singapore, and Sri Lanka. To gain a comprehensive understanding of urban green space, a thematic analysis was conducted for various Asian definitions sourced from literature and research documents. Through this analysis, the four key themes such as diverse characteristics, functions, and significance of urban green spaces have been identified.

Key Themes

Theme 1: Variety of Vegetated Areas

Theme 2: Multifunctionality of Green Spaces

Theme 3: Public and Private Spaces

Theme 4: Natural or Man-made

When considering all themes identified through the analysis can be applied to the Green Space definition. The proposed definition for the Green Space

"Green space includes natural or human-crafted vegetated areas, both publicly and privately owned, situated within urban or rural settings, fulfilling multifunctional roles to enhance environmental quality and promote community well-being".

To validate the above-proposed definition and gather feedback for refinement, in-depth interviews have been conducted with the 08 professionals. The interviews facilitated the exploration of different viewpoints, the identification of potential gaps or ambiguities in the proposed definition, and the generation of suggestions for improvement. The interviewed professionals have represented urban planning, architecture, academia, and environmental aspects.

The initial three questions aimed to ask their personal opinions regarding green space, while the final question sought feedback and ideas regarding the proposed definitions.

Based on the feedback received from the interviews and the comments provided, it is evident that the proposed definition of green space includes several important aspects but requires some refinement to

address specific concerns and ensure clarity.

Interviewer 01 appreciated the comprehensive coverage of the definition, noting its inclusion of essential characteristics such as vegetation, ownership, location, and role. The mention of ownership emphasizes the connection between green spaces and human settlements.

However, Interviewer 02 raised concerns regarding the location aspect of green spaces. While the definition acknowledges green spaces within urban or rural settings, there is a need to reconsider how it addresses spaces directly connected to the land versus those located within buildings.

Interviewer 03 highlighted the broad nature of the definition, emphasizing the necessity for specific criteria to guide the identification of green spaces. Additionally, they suggested including the well-being of animals alongside human well-being to provide a more comprehensive understanding of green space functions.

Interviewer 04 underlined the importance of distinguishing between organized and unorganized green spaces, encouraging their inclusion under the umbrella of "natural or man-made" environments.

Interviewer 05 provided a structured framework for evaluating the definition, suggesting criteria based on composition, use, and functions. They emphasized the multifaceted nature of green spaces, serving purposes beyond mere aesthetic enjoyment.

Interviewer 06 brought attention to the distinction between "human-crafted" and "human-made," proposing the latter as a more suitable term to describe the intentional establishment of vegetation areas by humans. They also highlighted the presence of green spaces in suburban environments, expanding the definition beyond urban and rural settings.

Interviewer 07 found the definition, particularly noting its recognition of green spaces as multifunctional elements embodying biological, economic, and ecological values within urban areas.

Interviewer 08 suggested the use of "man-made" instead of "human-crafted" to better align with the inherent naturalness of green spaces.

The feedback from the interviews provided valuable insights into the proposed definition of green space, highlighting both its strengths and areas for improvement. One notable strength is the comprehensive coverage of essential characteristics such as vegetation, ownership, location, and role. This inclusivity ensures a strong understanding of green spaces and their significance in various contexts. However, concerns were raised regarding the treatment of the location aspect of green spaces. While the definition acknowledges green spaces within urban or rural settings, there is a need for further refinement to address spatial variations, particularly in distinguishing between spaces directly connected to the land and those located within buildings. This refinement is crucial for ensuring clarity and inclusivity across diverse landscapes.

Additionally, there was recognition of the broad nature of the definition, prompting calls for specificity and the inclusion of specific criteria to guide the identification of green spaces. This specificity is essential for practical applications such as urban planning and environmental conservation efforts, where clear criteria can facilitate decision-making processes. The suggestions were also made to incorporate the well-being of animals alongside human well-being in the definition. Recognizing the interconnectedness of ecosystems and the importance of biodiversity in green spaces is critical for fostering sustainable environments that support diverse forms of life. Furthermore, there was an

emphasis on distinguishing between organized and unorganized green spaces, advocating for their inclusion under the umbrella of "natural or man-made" environments. This distinction reflects the diversity of green spaces and the different roles they play within human settlements.

According to the above description, the proposed definition captures various aspects of green spaces, refinement is needed to address specific concerns and ensure clarity, particularly in terms of location considerations, specificity, and the inclusion of animal well-being. The finalized definition aims to encompass these aspects, providing a comprehensive understanding of green spaces as multifunctional elements that enhance environmental quality and promote community well-being.

The finalized definition is,

"Green spaces are both natural and man-made vegetated areas, both publicly and privately owned, situated within diverse landscapes, and fulfilling multifunctional roles to enhance environmental quality and promote community well-being".

Explanation of the definition

1. Natural and Man-Made Vegetated Areas:

Naturally vegetated areas refer to green spaces that have developed without significant human intervention, such as forests, grassing lands, wetlands, and natural parks. Man-made vegetated areas, on the other hand, are intentionally made or cultivated by humans, such as gardens, urban parks, green roofs, and landscaped areas within urban developments. Together, these incorporate a wide range of environments where vegetation plays a significant role, whether naturally occurring or intentionally designed by humans.

2. Diverse Landscapes:

Diverse landscapes include a variety of environments and settings where green spaces are found. This includes urban areas, rural regions, suburban neighborhoods, industrial zones, agricultural lands, waterfronts, and more. The term highlights the resourcefulness of green spaces, which can thrive in different contexts and serve various purposes depending on the landscape they are situated in.

3. Fulfilling Multifunctional Roles:

Green spaces serve multiple functions beyond their aesthetic value. They provide habitats for wildlife, help mitigate climate change by sequestering carbon dioxide, improve air and water quality, regulate temperatures, reduce urban heat island effects, and contribute to biodiversity conservation. Additionally, green spaces offer recreational opportunities for physical activity, relaxation, and social interaction. They can also enhance mental health and well-being by providing access to nature and greenery in environments.

4. Enhance Environmental Quality:

Green spaces play a fundamental role in improving environmental quality by absorbing pollutants, filtering air and water, reducing noise pollution, and preventing soil erosion. They contribute to ecosystem services such as carbon sequestration, water purification, and pollination, thereby supporting ecological balance and resilience in urban and natural environments.

5. Promote Community Well-being:

Green spaces have a positive impact on the health and well-being of communities by providing accessible and inclusive spaces for recreation, exercise, and leisure activities. They contribute to social cohesion, community engagement, and a sense of place, fostering connections between people and their environment. Green spaces also enhance property values, attract tourists, and contribute to economic development in local areas.

5. CONCLUSION

The definition of green space offers a clear framework for understanding green spaces in the Colombo District, highlighting their diverse characteristics and functions. It use as a valuable tool for urban planners, policymakers, and environmentalists in designing, managing, and conserving green spaces to foster sustainable urban and rural environments. This definition emphasizes the environmental and ecological importance of green spaces while also highlighting their vital role in promoting community well-being, thus fostering holistic urban development and maintaining ecological balance.

This definition of green spaces is comprehensive, encompassing both natural and man-made vegetated areas, publicly and privately owned, situated within diverse landscapes, and serving multifunctional roles to enhance environmental quality and community well-being. Its strengths lie in its broad scope, which includes both natural and man-made spaces, its inclusive approach to ownership, and its recognition of green spaces in various landsscapes from urban to rural. Additionally, the definition highlights the multifunctional roles of green spaces, including environmental, recreational, aesthetic, and community benefits. Compared to development plans, this definition aligns with the varied types of green spaces, such as parks, recreational areas, and environmental protection zones, and supports diverse purposes like recreation and environmental protection. Similarly, it resonates with the Central Environmental Authority's (CEA) focus on ecological and environmental benefits, such as biodiversity conservation and pollution control, and complements the CEA's regulatory efforts by acknowledging the socio-economic dimensions and community well-being. Overall, the definition's inclusivity and multifunctional perspective make it strong and applicable across various contexts and stakeholders involved in urban planning and environmental protection.

When considering the Anthropocentric and Ecocentric perspectives, by adopting a balanced approach, the definition encourages a universal understanding of green spaces. It underscores the idea that green spaces are not solely for human use or solely for ecological preservation but rather serve both purposes simultaneously. Essentially, it highlights how humans and the environment depend on each other, understanding that their well-being is closely linked. Defining urban green spaces in Colombo is important for better city planning and environmental care. A clear definition helps identify and protect these areas as the built environment grows. It helps create and enforce policies to protect green spaces, which support wildlife, reduce pollution, and control local climates. This improves the environment and quality of life for residents.

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7. REFERENCES

Almanza, E., Jerrett, M., Dunton, G., Seto, E., & Pentz, M. A. (2012). A study of community design, greenness, and physical activity in children using satellite, GPS and accelerometer data. Health & Place, 18(1), 46–54. https://doi.org/10.1016/j.healthplace.2011.09.003

Bandara, K., Peiris-John, R., & Liyanage, G. (2017). Health benefits of urban green spaces in Sri Lanka. Journal of Environmental Health Research, 17(2), 123-135.

Baxter, W. F. (1974). People or penguins: The case for optimal pollution. Columbia University Press.

Boone-Heinonen, J., Casanova, K., Richardson, A. S., & Gordon-Larsen, P. (2010). Where can they play? Outdoor spaces and physical activity among adolescents in US urbanized areas. Preventive Medicine, 51(3–4), 295–298. https://doi.org/10.1016/j.ypmed.2010.07.013

Bowler, D. E., Buyung-Ali, L. M., Knight, T. M., & Pullin, A. S. (2010). A systematic review of evidence for the added benefits to health of exposure to natural environments. BMC Public Health, 10, 456. https://doi.org/10.1186/1471-2458-10-456

Bulkeley, H., Broto, C. V., & Edward, A. S. (2015). An urban politics of climate change: Experimentation and the governing of socio-technical transitions.

Dadvand, P., Bartoll, X., Basagaña, X., Dalmau-Bueno, A., Martinez, D., Ambros, A., et al. (2016). Green spaces and general health: Roles of mental health status, social support, and physical activity. Environment International, 91, 161-167. https://doi.org/10.1016/j.envint.2016.02.029

Dallimer, M., Irvine, K. N., Skinner, A. M. J., Davies, Z. G., Rouquette, J. R., Maltby, L. L., et al. (2012). Biodiversity and the feel-good factor: Understanding associations between self-reported human well-being and species richness. Bioscience, 62(1), 47–55. https://doi.org/10.1525/bio.2012.62.1.9

Dempsey, N., & Burton, M. (2012). Defining place-keeping: The long-term management of public spaces. Urban Forestry & Urban Greening, 11, 11-20.

Emechebe, L. (2020). Challenges of achieving sustainable green space in urban built environment in Nigeria. Environmental Technology & Science Journal, 11(2).

European Commission. (2013). European Parliament resolution of 12 December 2013 on green infrastructure – Enhancing Europe's natural capital. Retrieved from http://ec.europa.eu/environment/nature/ecosystems/index_en.htm

Fernando, N., & Gunawardena, K. (2017). Biodiversity conservation in urban areas: The role of green spaces. Journal of Urban Planning and Development, 143(4), 05017013. https://doi.org/10.1061/(ASCE)UP.1943-5444.0000409

Gentin, S. (2011). Outdoor recreation and ethnicity in Europe: A review. Urban Forestry & Urban Greening, 10(3), 153–161. https://doi.org/10.1016/j.ufug.2011.05.002

Gascon, M., Triguero-Mas, M., Martínez, D., Dadvand, P., Forns, J., Plasència, A., & Nieuwenhuijsen, M. J. (2015). Mental health benefits of long-term exposure to residential green and blue spaces: A systematic review. International Journal of Environmental Research and Public Health, 12(4), 4354–4379. https://doi.org/10.3390/ijerph120404354

Gómez-Baggethun, E., Gren, Å., Barton, D. N., Langemeyer, J., McPhearson, T., O'Farrell, P., Kremer, P. (2013). Urban ecosystem services. In T. Elmqvist, et al. (Eds.), Urbanization, biodiversity and ecosystem services: Challenges and opportunities (pp. 175–251). Springer. https://doi.org/10.1007/978-94-007-7088-1_11

Handley, J., et al. (2003). Accessible natural green space standards in towns and cities: A review and toolkit for their implementation. English Nature Research Reports, Report No. 526.

Heckert, M. (2013). Access and equity in greenspace provision: A comparison of methods to assess the impacts of greening vacant land. Transactions in GIS, 17(6), 808–827. https://doi.org/10.1111/tgis.12000

Jaafar, B., Said, I., Rasidi, M., & Ruas, J. (2009). Evaluating the impact of vertical greenery system on cooling effect on high rise buildings and surroundings: A review. Landscape and Urban Planning, 9(2), 1-9.

Jayasinghe, T., & Weerakoon, D. (2018). Accessibility and use of urban green spaces in Colombo. Urban Studies Journal, 32(4), 567-580.

Jim, C. Y., & Chen, S. S. (2003). Comprehensive greenspace planning based on landscape ecology principles in compact Nanjing city, China. Landscape and Urban Planning, 65, 95-116.

Kabisch, N., Strohbach, M., Haase, D., & Kronenberg, J. (2016). Urban green space availability in European cities. Ecological Indicators. https://doi.org/10.1016/j.ecolind.2016.02.029

Kong, F., & Nakagoshi, N. (2006). Spatial-temporal gradient analysis of urban green spaces in Jinan, China. Landscape and Urban Planning, 78, 147-164.

Lee, A. C. K., & Maheswaran, R. (2011). The health benefits of urban green spaces: A review of the evidence. Journal of Public Health, 33(2), 212–222. https://doi.org/10.1093/pubmed/fdq068

Lee, A. C. K., Jordan, H. C., & Horsley, J. (2015). Value of urban green spaces in promoting healthy living and wellbeing: Prospects for planning. Risk Management and Healthcare Policy, 8, 131-137.

Maas, J., Verheij, R. A., Groenewegen, P. P., de Vries, S., & Spreeuwenberg, P. (2006). Green space, urbanity, and health: How strong is the relation? Journal of Epidemiology & Community Health, 60(7), 587-592. https://doi.org/10.1136/jech.2005.043125

Manlun, Y. (2023). Suitability analysis of urban green space system based on GIS. Baycan-Levent, T., Vreeker, R., & Nijkamp, P. (2009). A multi-criteria evaluation of green spaces in European cities. European Urban and Regional Studies, 16(2), 193–213. https://doi.org/10.1177/0969776408101683

Markevych, I., Schoierer, J., Hartig, T., et al. (2017). Exploring pathways linking greenspace to health: Theoretical and methodological guidance. Environmental Research, 158, 301–317. https://doi.org/10.1016/j.envres.2017.06.028

Pauleit, S., Vasquéz, A., Maruthaveeran, S., Liu, L., & Cilliers, S. S. (2021). Urban green infrastructure in the Global South. In Urban ecology in the Global South (pp. 107–143). Springer.

Michael Paul Nelson, L. A., & Ryan, L. A. (2015). Environmental ethics. Oxford Bibliographies. https://doi.org/10.1093/OBO/9780199363445-0025

M'Ikiugu, M. M., Kinoshita, I., & Tashiro, Y. (2012). Urban green space analysis and identification of its potential expansion areas. Procedia - Social and Behavioral Sciences, 35, 449–458.

Nielsen, T. S., & Hansen, K. B. (2006). Nearby nature and green areas encourage outdoor activities and decrease mental stress. CAB Reviews: Perspectives in Agriculture, Veterinary Science, Nutrition and Natural Resources, 1, 059.

Norton, B. G. (1991). Toward unity among environmentalists. Oxford University Press.

Peña-Salmón, C., Leyva-Camacho, O., Rojas-Caldelas, R., Alonso-Navarrete, A., & Iñiguez-Ayón, P. (2014). The identification and classification of green areas for urban planning using multispectral images at Baja California.