PROCEEDINGS OF THE INTERNATIONAL CONFERENCE OF GRADUATE SCHOOL ON SUSTAINABILITY (ICGSS)

10th International Conference on Sustainability (ICoS10)
University of Merdeka Malang, November 15, 2025
https://jurnal.unmer.ac.id/index.php/icgss

E-ISSN:
2721-13988

Classification of Public Open Spaces Based on Form, Function, and Spatial Context

Anisatur Robi'ah[1*], Respati Wikantiyoso[1], Erlina Laksmiani Wahjutami[1]
[1]Magister of Architecture, Universitas Merdeka Malang, Indonesia
*Corresponding author: anisacha021@gmail.com

Abstract.

Public Open Spaces (POS) play a crucial role in supporting environmental sustainability, quality of life, and socio-economic dynamics in urban areas. However, existing classifications of POS in the literature still exhibit considerable conceptual and methodological variation, indicating the need for a more structured synthesis. This study aims to identify and synthesize POS classifications based on form, function, and spatial context, and to determine the most dominant POS types over the last 13 years. The research employs a narrative literature review of 29 selected articles published between 2012 and 2025. Data were collected using Publish or Perish and the Google Scholar database, and screened according to specific inclusion criteria. The synthesis reveals that Parks/Gardens, Linear Spaces, Squares/Plazas, and Courtyards represent the primary POS forms; green, grey, and green/grey categories reflect surface-type variations; and recreational, ecological, and social functions emerge as the most dominant, alongside structural and economic functions. Spatially, studies are predominantly focused on urban areas, while peri-urban and rural contexts exhibit more transitional and organic spatial characteristics. This synthesis highlights the importance of holistic, context-based typological approaches in designing inclusive, multifunctional, and sustainable POS. The findings provide a theoretical foundation and practical guidance for planning and managing public open spaces across diverse spatial settings.

Keywords: *Public Open Spaces, Classification, Narrative Review*

1 Introduction

A sustainable city must be able to provide access to clean water, air free from harmful pollution, renewable energy, an efficient mass transportation system, environmentally friendly solid waste management, and adequate public spaces (Veliu & Sylejmani, 2020). In the urban context, public open space is defined as an area not enclosed by buildings (Wandl et al., 2017). Public Open Space (POS) refers to a space that is physically open and unobstructed by structures (Nochian et al., 2015; Pokharel & Khanal, 2018), and can be accessed and used by everyone (Ahirrao & Khan, 2021). Furthermore, POS includes all places owned or used by the public, which can be accessed and enjoyed by anyone for free and without profit-oriented purposes (Obadiah & Haruna, 2025). These definitions indicate that public open space is essentially a physical area free of built structures, inclusive, and accessible to all without economic barriers. With these characteristics, POS becomes an important element in supporting urban sustainability.

POS serves as a container for various daily activities, which highlights the importance and appeal of public space in urban life (Vujadinovic, 2016). POS also functions as a container for human interaction, ranging from casual meetings to activities with more structured participation

E-ISSN:
2721-13988

(Kępkowicz, 2024). In addition, the presence of POS is crucial for maintaining a balance between the natural and built environments in spatial planning (Harjanti & Anggraini, 2020; Wuisang et al., 2023). Furthermore, space should not be understood solely as a physical container, but as an entity produced, interpreted, and experienced by the community. Therefore, the conceptualization of POS must consider how space is formed, how it is experienced, and who uses it (Vujadinovic, 2016). This perspective emphasizes that POS plays a multidimensional role shaped by community practices and experiences.

Rapid urban expansion has negatively impacted the development of public spaces (Veliu & Sylejmani, 2020). Under such conditions, open space planning becomes an important aspect in realizing sustainable spatial development that can contribute to social, cultural, and environmental justice (Wandl et al., 2017). The evolution of public space typologies over the past few decades has seen changes in both spatial form and public perception. Most of these typologies are still dominated by urban contexts, as discussions about the function of public spaces are also largely centered on urban environments (Soszyński & Kamiński, 2022). Typologies proposed by various academics vary considerably in their level of detail. On the one hand, some studies provide very concise classifications of public spaces; on the other hand, some studies offer more detailed and comprehensive typologies. This diversity reflects the breadth of theoretical approaches and the challenges in formulating a systematic understanding.

Specifically, this study aims to (1) synthesize various approaches to Public Open Space (POS) classification presented in the literature, and (2) identify the dominant types of POS discussed in scientific publications from 2012 to 2025. Systematizing this classification is essential for building a more structured theoretical foundation while providing practical guidance for the design, development, and management of POS. By reorganizing POS types by form, function, and spatial context, this study aims to systematize knowledge of POS characteristics. This effort enables a more orderly understanding of the phenomenon, facilitates navigation through the literature, and supports the exploration of variations in public space in relation to its spatial context.

2 Method

This research uses a literature review method, specifically a narrative literature review. This method is a form of qualitative literature review and aims to compile a comprehensive review of previous research results on a particular topic (Putri et al., 2022). Through a narrative approach, researchers not only summarize research findings but also synthesize various concepts to build a more complete theoretical understanding. The research object is an aspect or issue that is the focus of the problem in a study (Nahdiyin, 2023). In this research, the object studied is a public open space.

Data collection was conducted using Publish or Perish software, which was connected to the Google Scholar database. To obtain a broad scope of literature and represent a diversity of theoretical perspectives, the keywords “public open space” and “typology” were used. The initial search yielded approximately 150 articles related to POS. These articles were then selected in stages through a title- and abstract-based screening process, with a focus on research discussing the classification of public open spaces. Inclusion criteria included: (1) discussing the typology, form, function, or context of POS; (2) published in the 2012–2025 period; (3) international articles in English; and (4) available in full text. The types of publications included

E-ISSN:
2721-13988

scientific journals, conference proceedings, theses/dissertations, reports or policy frameworks, and preprints.

After a screening process, 29 articles were selected, deemed the most relevant and representative. These articles provide a comprehensive overview of the latest developments in POS concepts and classifications over the past ten years. The narrative approach employed facilitated in-depth interpretive synthesis, but has limitations such as potential selection bias (due to the limited use of Google Scholar) and the subjective nature of the thematic coding process when analyzing and categorizing the literature.

3 Results and Discussion

Based on a literature synthesis, POS can be classified into several key aspects, including its form, function, and spatial context. These three aspects are interrelated and provide a comprehensive overview of POS characteristics across various environments. Therefore, the presentation of these research findings is structured based on these three classifications

3.1 Classification Based on Form

The typomorphological approach integrates the volumetric characteristics of building structures with related open spaces to describe urban landscapes (Wandl et al., 2017). Based on this approach, the classification of POS forms can be identified through basic morphology, which are grouped according to geometric shapes and physical attributes, namely: squares/plazas, parks/gardens, linear spaces/corridors, and courtyards (Ahirrao & Khan, 2021; Marshall & Zhang, 2018; Pattacini, 2021). These four categories indicate that the form of a POS is essentially determined by its physical configuration, such as centralized, dispersed, elongated, or enclosed by building mass, and that this configuration directly influences the social functions, movement patterns, and potential activities that can occur within it (Crnic, 2014; Pattacini, 2021). Thus, form becomes a fundamental basis for understanding the role and dynamics of POS in an urban context.

The classification of Squares or Plazas is generally based on their centralized form and the presence of surrounding building masses (Pattacini, 2021). This space is traditionally recognized as a civic space, serving as a setting for public gatherings and collective activities. Historically, this typology was designed to accommodate social, political, and market-related activities (Martin, 2022; Obadiah & Haruna, 2025). Within a typomorphological analysis, Squares/Plazas can be examined through several key aspects, such as size, geometric form (e.g., square or circular), and the degree of enclosure created by the surrounding built structures (Pattacini, 2021). A study in Medina highlights examples such as Al Hadim Square and LalehOdeh Imperial Square in Meknes, both of which exhibit well-organized spatial geometries (Martin, 2022). In Indonesia (Jakarta, Palembang, Semarang), this typology is commonly known as alun-alun or plaza, functioning as a center for market activities, public gatherings, and recreation (Alfatih et al., 2018; Dissa, 2025; Harjanti & Anggraini, 2020). Similar examples can also be found in Nigeria, such as Lafia Square and Emir Palace Square, which are used for religious events, traditional celebrations, and economic activities (Alfatih et al., 2018). Overall, the Square/Plaza represents a POS typology characterized by its centralized form, strong spatial enclosure, and pronounced civic–social functions. This pattern is consistent across various cultural contexts, demonstrating that geometric form and its relationship with surrounding building masses are key factors shaping the character and function of these spaces.

E-ISSN:
2721-13988

The categories of Parks and Gardens are classified as Green Spaces, whose physical character is dominated by natural elements rather than rigid urban geometries (Ahirrao & Khan, 2021). These spaces function as areas for recreation, social interaction, and ecological services, encompassing both nature spaces and recreation spaces (Alexander, 2012; Kongphunphin & Srivanit, 2021; Pattacini, 2021). Within a typomorphological approach, Parks are distinguished from Squares or Linear Spaces due to their more organic physical forms, which are not bound to linear patterns or rigid geometric configurations (Pattacini, 2021). In various classification studies, parks are differentiated based on hierarchy or size, ranging from Mini-Parks, Neighborhood Parks, Community Parks, to City Parks (Alexander, 2012; Kongphunphin & Srivanit, 2021). Parks are also commonly used as indicators of urban landscape quality and contribute significantly to improving community well-being (Ahirrao & Khan, 2021). Although their primary functions are recreational and ecological, in dense urban areas such as Kauman in Semarang, parks may also accommodate economic functions, for example, serving as locations for informal trading activities (Harjanti & Anggraini, 2020). Additionally, the Park category includes spaces with special functions, such as cemetery complexes or city forests, which are still classified as part of Green Open Space (Alfatih et al., 2018). Classifications also vary across urban contexts. In Bangkok, parks are categorized into Historical Parks, Community Parks, Forest Parks, Artificial Parks, and Creative Parks (Kongphunphin & Srivanit, 2021). In Michigan, USA, typologies include Mini-Parks, Neighborhood Parks, Community Parks, and Large Urban Parks, while in London, they are classified into Metropolitan Parks, District Parks, Local Parks, Small Local Parks, and Pocket Parks (Nochian et al., 2015). Overall, Parks and Gardens represent open spaces dominated by natural elements, with a wide variety of organic forms and size hierarchies. Despite differences in geographical context, classification patterns consistently show that ecological, recreational, and social functions form the core of this typology. In contrast, functional flexibility, including economic or specialized functions, reflects adaptation to the specific needs of each area.

In morphological classification, Linear Spaces or Corridors are defined as elongated open spaces that function as connectors between various zones, functions, or elements within the city (Pattacini, 2021). These spaces may take linear or curved forms (Crnic, 2014). City streets are widely recognized as essential POS, especially in high-density urban areas, as they serve as everyday interaction spaces for the community (Wen et al., 2020). Streets represent the most accessible and commonly used form of Public Open Space (POS) (Pattacini, 2021; Soszyński & Kamiński, 2022). Linear POS are often identified as green lanes or road borders, which form part of the public Green Open Space (GOS) system, as demonstrated in the case study of Semarang City (Harjanti & Anggraini, 2020). The linear typology also includes natural corridors such as river strips, which function as recreational routes, aesthetic elements, and even religious spaces in urban settings such as Pokhara, Nepal (Pokharel & Khanal, 2018). In rural contexts, such as Eastern Poland, streets do not merely serve as mobility infrastructure but also act as places for brief social encounters and children's play, thereby supporting social and recreational activities. These functions can be enhanced through the provision of street furniture (Soszyński & Kamiński, 2022). Meanwhile, in London, the street network is classified as part of the area structure and circulation corridors that define the spatial framework of the urban environment (Marshall & Zhang, 2018). Overall, Linear Spaces serve as multifunctional open spaces that integrate mobility, social, ecological, and recreational functions. Regardless of context, such as urban, peri-urban, or rural, linear spaces consistently function as connective elements shaping the city's structure while providing flexible and highly accessible spaces for public interaction.

E-ISSN:
2721-13988

PROCEEDINGS OF THE INTERNATIONAL CONFERENCE OF GRADUATE SCHOOL ON SUSTAINABILITY (ICGSS)

10th International Conference on Sustainability (ICoS10)
University of Merdeka Malang, November 15, 2025
https://jurnal.unmer.ac.id/index.php/icgss

Morphologically, courtyards are commonly associated with collective residential structures such as multi-apartment buildings or housing estates, where the central yard functions as a shared open space that ties together the surrounding building masses (Kępkowicz, 2024; Marshall & Zhang, 2018). In dense urban areas, courtyards in the form of private building yards serve as private Green Open Spaces (GOS) with ecological and economic functions, such as growing fruit plants, as well as aesthetic functions that enhance residents' comfort (Harjanti & Anggraini, 2020). In rural contexts, research shows that courtyards tend to have more informal forms, such as front yards, and function as important spaces for social interaction among residents (Ischak et al., 2023). In the Netherlands, particularly in Bunnik, the Estate Courtyard represents one type of planned POS developed through a top-down approach in suburban residential environments (Kępkowicz, 2024). Overall, courtyards are open spaces that are more enclosed and small-scale, with characteristics strongly influenced by the configuration of the surrounding building masses. The classification by form summary is shown in Table 1.

Table 1. Classification of POS Based on Form

Form Category	Main Physical Characteristics	Example Functions	Example POS (Type/Name)	Example Studies/References
Squares / Plazas	Hard-surfaced open areas, often enclosed by buildings, are geometric in shape.	Gathering, civic events, markets, public meetings, and commercial activity.	Civic Space, Town Square, Urban Plaza,	Al-Hadim Square (Meknes, Morocco), Emir Palace Square (Lafia, Nigeria), Aloon-Aloon (Semarang, Indonesia)
Parks / Gardens	Vegetated areas with significant tree/grass cover.	Active/passive recreation, social interaction, well-being, CO_2 absorption, and UHI mitigation.	Urban Park, City Park, Pocket Park, Recreational Garden, Botanical Garden, Forest Park	Lumphini Park (Bangkok, Thailand), Tebet Eco Park (Jakarta, Indonesia), Arboretum Nasional (Canberra, Australia), Taman Suropati (Jakarta, Indonesia)
Linear Spaces / Corridors	Elongated spaces for circulation: streets, paths, green belts, river corridors	Movement, accessibility, active recreation (jogging, cycling), social interaction, aesthetics (green belt).	Streets/Roads (including sidewalks, verges, green lanes), Green Corridor, River Strip/Bank, Parkways, Promenade	La Rambla (Barcelona, Spain), Green Lane/Road Borders (Semarang, Indonesia), Alleys (Pollards Hill Estate, London)
Courtyards	Open spaces are almost entirely enclosed by buildings, providing a sense of privacy.	Property access, neighbor interaction/socialization, children's play, leisure, and semi-private backyard use.	Estate Courtyard, House Frontage (Kofar Gida), Neighborhood Space.	Pollards Hill Estate (London, UK), Kampong of Kalipaten (Front Yard, Indonesia), Medina (Semi-open space in neighborhood unit, Fes, Morocco), Woonerf (Netherlands)

Source: Processed by the author, 2025

In addition to geometric form, POS can also be classified by surface type (Surface Cover Classification). Based on surface characteristics, POS are divided into three categories: green, grey, and green/grey spaces (Wandl et al., 2017). Green open spaces are "soft" surfaces that are not covered by hard materials and are generally permeable, such as lawns, fields, and other vegetated areas. This type of space provides a wide range of benefits, including improved public

E-ISSN:
2721-13988

health, support for biodiversity, strengthened social cohesion, and economic benefits such as increased property values and enhanced city attractiveness for tourism (Wandl et al., 2017). Characteristically, green spaces include areas covered with vegetation, bodies of water, and natural geological features within urban environments (Obadiah & Haruna, 2025). Their primary purpose is environmental conservation and the provision of ecological functions such as shading, pollutant absorption, and groundwater infiltration (Harjanti & Anggraini, 2020). For example, in Manado, this typology includes City Parks and Urban Forests managed as public spaces (Wuisang et al., 2023). In contrast, the Tlocor Marine Tourism Area in Sidoarjo is a protected area designated as Natural Green Open Space (Shofwan et al., 2024). Green spaces are essential urban elements that support ecological and social functions, characterized by their natural, permeable surfaces. Although their forms and management practices vary across regions, ecological functions such as water absorption and shading, as well as social benefits, remain consistent characteristics of this typology.

Meanwhile, grey open spaces consist of "hard" surfaces covered by impermeable materials such as roads, concrete pavements, or parking areas (Wandl et al., 2017). This typology is often categorized as civic spaces due to the dominance of public activities that take place on paved or hard-surfaced areas (Obadiah & Haruna, 2025). In urban contexts, grey spaces include squares, plazas, markets, and other areas designed for circulation and community activities. For example, in Quezon City, this category includes Linear Systems (roads and avenues), Monument Roundabouts, and School Grounds (Cruz & Navarra, 2025). This type may also refer to squares or plazas dominated by hard surfaces and functioning as centers of interaction and mobility (Marshall & Zhang, 2018; Pattacini, 2021). Grey spaces are open spaces characterized by hard surfaces that support civic activities, mobility, and other public functions. Although they contrast with green spaces in ecological terms, this typology remains an essential element of the urban structure due to its role in circulation, public gatherings, and the formation of spatial identity.

The typology of Green/Grey Spaces refers to open spaces that feature a significant combination of vegetated elements and hard or gravel surfaces (Cruz & Navarra, 2025). Spaces with this mixed character are typically designed to accommodate diverse functional needs, such as recreational activities that require grassy areas as well as circulation or social activities that rely on paved surfaces. In Indonesia, this category is commonly found in Non-Natural Green Open Spaces, such as revitalized urban parks. In these spaces, vegetation is combined with paved pathways, small plazas, or hard-surfaced seating areas to support various socio-cultural activities (Shofwan et al., 2024). Green/Grey Spaces represent a transitional typology that integrates the ecological qualities of green spaces and the civic functions of grey spaces. This combination allows such spaces to offer flexible use, making them effective in supporting recreational activities, circulation, and social interaction simultaneously. The summary of the classification based on surface cover is shown in Table 2.

Table 2. Classification of POS Based on Surface Cover

Surface Type	Main Physical Characteristics	Example Functions	Example POS (Type/Name)	Example Studies/References
Green Spaces	Dominated by vegetation; unsealed soil; includes water or natural features.	Ecological services (microclimate, water absorption, habitat); passive recreation; aesthetics;	Urban Forest, Nature Reserve, Community Park, Multi-recreational Estate Lawn.	Natural Green Spaces (Canberra, Australia), Green Park (Pokhara, Nepal), City Forest (Palembang, Indonesia), Private GOS di Kawasan

E-ISSN:
2721-13988

Surface Type	Main Physical Characteristics	Example Functions	Example POS (Type/Name)	Example Studies/References
		biodiversity conservation.		Permukiman (Kauman, Semarang, Indonesia)
Grey Spaces	Hard-surfaced, paved, or fully built-up areas with geometric layouts.	Civic/public events; commercial activities; circulation and transport.	Civic Spaces, Urban Squares, Commercial Pedestrian Streets, Linear Systems (jalan, trotoar)	Al-Hadim Square (Meknes, Morocco), City Hall Plaza (Boston, AS), Office Grounds (Quezon City, Philippines), Emir Palace Square (Lafia, Nigeria)
Green/Grey Spaces	Mix of vegetation and hard surfaces; designed for multifunctional use.	Active/passive recreation; community activities; special institutional or religious functions.	Pocket Park, Sports Complex, Cemeteries/Burial Grounds, Public Allotment Gardens, Church Grounds	Pocket Parks (Quezon City, Philippines), Amoranto Sports Complex (Quezon City, Philippines), PPLS Lumpur Sidoarjo Park (Sidoarjo, Indonesia), Cemetery Complex (Palembang, Indonesia)

Source: Processed by the author, 2025

Overall, the classification of POS based on form and surface cover demonstrates that the physical characteristics of space, as geometry, building mass configuration, and the composition of hard and soft elements, directly influence the social, ecological, recreational, and cultural functions that may emerge within it. Squares/Plazas, Parks/Gardens, Linear Spaces, and Courtyards illustrate the morphological diversity of POS, ranging from centralized to elongated or enclosed spaces, each shaping different patterns of activity and levels of use. Meanwhile, the categories of green, grey, and green/grey spaces highlight that surface quality determines a space's capacity to provide ecosystem services, support mobility, or accommodate socio-economic activities. The combination of these two approaches indicates that POS are multifunctional spatial entities in which physical form and surface structure are inseparable from their functions and the dynamics of urban life. Thus, a holistic understanding of morphology and surface types becomes essential for designing, managing, and optimizing POS so that they can meet community needs while sustaining the quality of the urban environment

3.2 Classification Based on Function

In determining the functional typology of a Public Open Space (POS), it is essential to consider the relationship between function and form, as function shapes design, patterns of space use, and the configuration of spatial structures, including the dominant role a space performs (Vujadinovic, 2016). The functions of POS can be grouped into six main categories: structural, economic, natural, recreational, social, and cultural (Kępkowicz, 2024). The structural function of POS encompasses the role of space in shaping connectivity networks and organizing architectural spaces and activities within urban centers (Vujadinovic, 2016; Yang et al., 2019). POS act as connectors between urban elements, enabling access to public transportation networks, pedestrian systems, and other mobility routes (Berenji, 2024; Pokharel & Khanal, 2018). In addition, POS helps define landscape structures, urban spatial patterns, and the identity of residential districts (Kongphunphin & Srivanit, 2021; Nochian et al., 2015). Overall, the structural function demonstrates that POS do not merely provide space for activities but also serve as binding elements that shape the city's spatial framework.

The economic function of Public Open Spaces (POS) encompasses both direct and indirect benefits, ranging from contributions to community income and local businesses to increases in

E-ISSN:
2721-13988

property value and reductions in social costs. In developed areas, properties with views of green spaces (park-view dwellings) typically have higher market value (Veliu & Sylejmani, 2020). POS have also been shown to stimulate surrounding economic activity, including retail, hotels, and street food vendors (Ahirrao & Khan, 2021; Alexander, 2012; Nochian et al., 2015). An example from Canberra, Australia, demonstrates that ceremonial landscapes such as Anzac Parade and the National Triangle not only carry significant sociocultural value but also serve as tourist destinations that support the local economy(Ignatieva & Mofrad, 2023). The economic function of POS also emerges through the provision of jobs and livelihood opportunities for residents, particularly in areas where commercial activities are integrated around open spaces (Ahirrao & Khan, 2021). In urban centers, commercial spaces, such as pedestrian streets or squares, serve as POS specifically designed to integrate commercial, cultural, and recreational functions within a single space (Yang et al., 2019). In Indonesia, this is evident in recreational facilities in Sidoarjo, such as Apkasi Park and Dwarakerta Park, which stimulate the local economy through facility rentals, food stalls, and services operating around the parks (Shofwan et al., 2024). The economic function highlights that POS serve not only as social and ecological spaces but also as vital drivers of local and regional economies. Increased property values, business growth, employment opportunities, and tourism potential all demonstrate that well-managed POS can generate layered and sustainable economic impacts for cities.

Natural functions in Public Open Spaces (POS) serve as ecological connectors that integrate urban ecosystems with peri-urban areas (Wandl et al., 2017). Open spaces are not only viewed from visual or social perspectives, but also from their capacity to provide ecosystem services such as microclimate cooling, water regulation, and habitat support (Wandl et al., 2017). POS can function as habitats for flora and fauna and contribute to the ecological sustainability of cities (Nochian et al., 2015). The typology of green spaces in Canberra, Australia, holds high ecological value because it supports native biodiversity and provides stable habitats for local wildlife (Ignatieva & Mofrad, 2023). In Indonesia, the natural functions of Green Open Spaces include regulating microclimates, providing shaded areas, and serving as the “lungs of the city.” (Harjanti & Anggraini, 2020). Vegetation in POS absorbs carbon dioxide (CO_2) and releases oxygen (O_2), thereby purifying urban air. Green spaces also play a significant role in reducing the urban heat island effect and lowering land surface temperatures (Babita et al., 2019). As part of the blue–green infrastructure, green open spaces help regulate water flow and reduce rainwater runoff. For example, Tebet Eco Park in Jakarta is designed through an ecological landscape approach, including river re-naturalization, to reduce flood risk (Dissa, 2025). Additionally, green open spaces can function as temporary shelters during disasters, contributing to disaster risk management (Cruz & Navarra, 2025). In Lafia, Nigeria, Natural Green Spaces include protected areas used for picnics, relaxation, and greening efforts (Cruz & Navarra, 2025), demonstrating variations in ecological and recreational functions across global contexts. Overall, the natural function of POS underscores the vital role of green spaces as ecological elements that sustain the environmental quality of cities

Recreational functions in Public Open Spaces (POS) involve providing spaces for informal physical activities, relaxation, and social interaction (Alexander, 2012). Recreational activities contribute significantly to the physical and mental well-being of urban residents (Ahirrao & Khan, 2021; Veliu & Sylejmani, 2020). Recreational activities in POS include play, sports, social gatherings, and optional activities performed when time and conditions allow (Kępkowicz, 2024; Soszyński & Kamiński, 2022). POS should ideally be designed to be

E-ISSN:
2721-13988

multifunctional so that various activities such as sports, picnics, and social meetings can take place simultaneously within the same space (Alexander, 2012). Recreational activities are generally grouped into two categories: (a) Active recreation, which includes sports and play facilities such as play lots and playing fields, (b) Passive recreation, which includes spaces such as gardens, parks, and parkways, focusing more on tranquility, aesthetics, and relaxation (Obadiah & Baba Haruna, 2025). Recreational spaces may also overlap with cultural functions. For example, the National Arboretum in Canberra, Australia, functions not only as a recreational area but also as a tourist destination with distinctive landscape and cultural-educational value (Ignatieva & Mofrad, 2023). The recreational function in POS demonstrates that open spaces must accommodate diverse forms of community activities that support health, well-being, and a dynamic social life. Flexibility in design is a key factor in ensuring that POS can meet varied recreational needs across ages and cultural contexts.

POS functions as a social arena where people build social relationships and create lively encounters for various purposes (Ahirrao & Khan, 2021). POS facilitates face-to-face interactions that strengthen the sense of community and connect individuals with broader social groups (Ahirrao & Khan, 2021; Nochian et al., 2015; Vujadinovic, 2016). This social dimension is closely linked to sustainability, particularly by supporting human health and well-being, opportunities for interaction, social engagement, and recreation. (Wandl et al., 2017). Social activities in POS include everyday interactions such as brief encounters, conversations, relaxing, playing, observing the surroundings, and serving as meeting points between residents and visitors or tourists (Soszyński & Kamiński, 2022). In Indonesia, for example, Taman Suropati in Jakarta functions as a hub for social, cultural events, music, and artistic activities organized by local communities, contributing significantly to the vibrancy and dynamism of the public space (Dissa, 2025). In Lafia, Nigeria, common social activities in POS include playing, reading, writing, sitting, chatting, and gathering (Obadiah & Haruna, 2025). The social function of POS underscores the role of open spaces as settings for human interaction that strengthen social cohesion and community identity. Through a wide range of spontaneous and organized activities, POS become inclusive environments that support social integration, community formation, and the enhancement of overall quality of life.

The cultural function of POS relates to their aesthetic, historical, and symbolic values, as well as their role in accommodating artistic events and community expressions (Kępkowicz, 2024). POS should reflect local cultural identity and maintain the emotional bonds between the space and its users (Alfatih et al., 2018). This category also includes sacred spaces with religious characteristics, such as temples, cemeteries, and roadside shrines. In addition, monuments, historical graves, and objects considered sacred by local communities fall within this typology because they are often visited for religious, ritual, or meditative purposes (Soszyński & Kamiński, 2022). Cultural value also encompasses efforts to protect archaeological heritage and UNESCO sites embedded within the urban landscape (Wuisang et al., 2023). For example, the historic areas of Medina Fes and Meknes, listed as UNESCO World Heritage Monuments, retain their original open-space patterns, reflecting ancient Islamic morphology and cultural history (Wuisang et al., 2023). In modern contexts, cultural functions in POS may emerge through contemporary adaptations. For instance, Taman Martha Christina Tiahahu (Literacy Park) in Jakarta has been transformed into a thematic literacy center as part of the UNESCO City of Literature initiative, strengthening both its cultural and educational functions (Dissa, 2025). In rural communities in Nigeria, open spaces such as Filin Idi (Eid Ground) and Makabarta (Burial Ground) serve as religious and symbolic sites, collectively managed by

residents (Muhammad et al., 2022). The cultural function shows that POS are not merely physical spaces but also spaces of meaning that represent a community's identity, values, and collective memory. Through historical heritage, religious practices, community expressions, and modern cultural revitalization, cultural functions ensure that POS remain integral to a place's social and historical narrative. The summary of the classification by function is shown in Table 3.

Table 3. Classification of POS Based on Function

Function	Main Activities / Roles	Example POS (Type/Name)	Example Studies/References
Structural	Defines urban structure (networks, blocks, plots); regulates movement flows and accessibility; connects city elements.	Street Networks, Roads, Corridor Open Spaces, Greenways	City Streets (Frankfurt am Main, Germany); Linear Systems (Quezon City, Philippines)
Economic	Supports commercial activities (retail, services, F&B); increases property value; generates revenue (rent, sponsorships).	Open Space for Commerce, Shopping Street, Diner's Garden, Aloon-Aloon	Martha Christina Tiahahu Park (TOD retail area, Jakarta, Indonesia); Aloon-Aloon (Semarang, Indonesia)
Natural / Ecological	Maintains ecosystem balance; produces oxygen; regulates water (infiltration, flood mitigation); reduces UHI, air/noise pollution.	Urban Green Spaces, Nature Reserve, Forest Reserves, Bioswales, Wetlands, Tebet Eco Park	Natural Green Spaces (Canberra, Australia); Recreational Garden (Semarang, Indonesia)
Recreational	Provides facilities for structured/unstructured physical activity, relaxation, leisure, play, and sports.	Playground, Sports Complex, Recreational Places, Pocket Park, Multi-Recreational Estate Lawn	Sparta Tikala Field (Manado, Indonesia); Open Sports Grounds (Bunnik, Netherlands); Golf Course (Lafia, Nigeria)
Social	Facilitates casual or organized social interaction; builds cohesion and sense of community; supports local social life.	Front Yard & Little Shops (as interaction points), Multifunctional Village Squares, Community Park	Kampong Kalipaten (Little Shops, Tangerang, Indonesia); Kofar Fada (Palace Frontage, Katsina, Nigeria)
Cultural	Expresses ethical, spiritual, and religious values; reflects place identity and history; serves as a forum for arts and cultural events.	Sacred Sites (temples, churches, shrines), Cemetery, Memorial Park, Institutional Landscapes, Literacy Park	Martha Christina Tiahahu Park – Literacy Park (Jakarta, Indonesia); Religious Sites (Pokhara, Nepal); Cemetery (Woden, Australia)

Source: Processed by the author, 2025

Overall, the six functional categories of POS demonstrate that POS operates as a multidimensional urban infrastructure that integrates physical, ecological, social, cultural, and economic systems within the city. The structural function positions POS as a spatial organizer that shapes overall urban connectivity and framework, while the economic function highlights its capacity to generate livelihoods, stimulate local business growth, and enhance property values. The natural function underscores the ecological importance of POS in regulating microclimates, supporting biodiversity, and contributing to urban resilience. The recreational function emphasizes POS's role in enhancing physical and mental well-being through diverse recreational activities. The social function demonstrates POS as an inclusive arena for interaction, community bonding, and everyday encounters. In contrast, the cultural function illustrates its ability to preserve heritage, embody collective memory, and strengthen place identity. Collectively, these functions demonstrate that POS is not a single-purpose

E-ISSN:
2721-13988

environment but rather a dynamic, multifunctional space essential to sustaining urban life and enhancing the city's overall quality and livability.

3.3 Classification Based on Spatial Context

The typology and function of Public Open Spaces (POS) vary significantly across urban, peri-urban, and rural areas, depending on their scale and socio-economic dynamics. In the urban category, POS are located in city centers or zones with the highest levels of urbanization, land-use intensity, and activity density (Kongphunphin & Srivanit, 2021; Veliu & Sylejmani, 2020; Wen et al., 2020; Yang et al., 2019). In densely populated Asian cities, open spaces in urban cores are generally classified based on recreational, commercial, and transportation functions, as these areas accommodate high levels of mobility and economic activity (Yang et al., 2019). Management of POS in central areas is often under the authority of provincial or national governments, as seen in the management of city parks in Jakarta (Dissa, 2025). An example of this typology can be found in Dalian Xinghai Square in China, one of the largest urban squares designed to accommodate large-scale recreational activities and public events (Yang et al., 2019). In Jakarta, high-density areas such as Tebet have become locations for the development of large-scale public parks, such as Tebet Eco Park (Dissa, 2025). Additionally, some cities integrate POS with commercial and tourism functions, as demonstrated in the Lifestyle–Tourism District in Quezon City, developed within a Transit-Oriented Development (TOD) framework (Cruz & Navarra, 2025; Dissa, 2025). POS in urban cores indicate that open spaces in city centers must be designed to accommodate high activity intensity while supporting various recreational, commercial, mobility, and tourism functions. Their management, often at higher administrative levels, emphasizes the strategic role of urban cores as the city's showcase. Thus, POS in central urban zones becomes a vital instrument in shaping the city's image, enhancing residents' quality of life, and integrating complex urban activities into a well-managed spatial system.

The Peri-Urban category refers to Public Open Spaces (POS) located in transitional zones between dense urban areas and rural regions that physically and socially reflect a blend of both characteristics (Wandl et al., 2017). In many cases, POS in peri-urban areas emerge organically without formal planning. A study in Kampong Kalipaten, Tangerang, Indonesia, shows that peri-urban open spaces in unplanned settlements may appear spontaneously as responses to everyday social needs (Ischak et al., 2023). In suburban areas with mature urban planning, POS tend to be classified based on recreational functions and community gathering activities (Kępkowicz, 2024). In Bunnik Commune, the Netherlands, for example, suburban POS typologies include areas such as Estate Courtyards and Multi-Recreational Estate Lawns, which are typically developed and managed by the private sector (Kępkowicz, 2024). POS in peri-urban and suburban zones illustrate that open spaces in transitional areas have unique characteristics due to their location between the dynamics of the city and the countryside. POS may emerge spontaneously in unplanned areas or be incorporated into structured designs in well-planned suburban developments. The diversity of forms and functions from shared courtyards to recreational spaces and semi-private areas managed by private entities highlights the important ecological, social, and spatial role of peri-urban zones as buffers between urban centers and rural regions.

POS in rural areas are generally characterized by the dominance of natural landscapes and agriculture-based activities, giving them a distinct character compared to open spaces in urban environments (Kępkowicz, 2024). Rural POS typologies indicate that many public spaces

E-ISSN:
2721-13988

emerge unintentionally, such as areas around local shops, village roads, or open surfaces that residents organically appropriate as gathering places (Soszyński & Kamiński, 2022). Rural POS are often used for various domestic and socio-cultural activities, ranging from family routines and interactions among residents to traditional communal events (Soszyński & Kamiński, 2022). Social activity patterns tend to be homogeneous and intensive, reflecting strong social closeness, mutual familiarity, and emotional attachment among residents, which is common in many Indonesian villages (Ischak et al., 2023). In terms of ownership, rural open spaces are generally grouped into three categories: community-owned, privately owned, and government-owned, each with different levels of accessibility and functions (Muhammad et al., 2022). Research in Eastern Poland identifies eight main types of rural public spaces. Although some locations exhibit mixed characteristics with flexible boundaries across categories, most places display dominant features that allow them to be classified into one of the eight types. Multifunctional village squares and grocery-store surroundings serve as primary spaces accommodating various community activities (Soszyński & Kamiński, 2022). Overall, POS in rural areas exhibit more organic, informal, and socio-communal characteristics compared to urban POS. These spaces are not always formally planned but develop naturally as responses to domestic needs, cultural practices, and daily social interactions. The dominance of natural landscapes, strong social bonds, and functional flexibility make rural POS inclusive and vibrant spaces that reflect the identity and traditional lifestyle patterns of rural communities. The summary of the classification based on spatial context is shown in Table 4.

Table 4. Classification of POS Based on Spatial Context

Spatial Context Category	Key Characteristics	Example POS (Type/Name)	Example Studies/References
Urban (City Core / High Density)	High density; limited and expensive land; minimal green space; emphasis on accessibility and multifunctionality; design interventions often needed to reduce crowding.	Urban Plazas/Squares, Open Spaces for Commerce, City Parks, TOD-linked Parks, Civic Spaces	Taman Suropati (Central Jakarta, Indonesia); Medina Fes & Meknes (Morocco); Open Space for Commerce (City Centers in China)
Peri-Urban (Urban Fringe / Transitional Zone)	apid and sporadic growth (dense sprawl); hybrid urban–rural character; rising residential density; often influenced by or adjacent to new town development.	Estate Courtyard, Multi-Recreational Estate Lawn, Public Allotment Gardens, Kampong Open Spaces (Roads, Front Yards, Little Shops)	Kampong Kalipaten (Tangerang, Indonesia); Pristina, Kosovo; Bunnik Commune (Netherlands)
Rural (Agrarian / Village Areas)	Low density; dominated by natural or agricultural landscapes; spaces often emerge spontaneously; strong social cohesion within communities.	Semi-natural Places (river/lake edges), Grocery Surroundings (informal interaction hubs), house frontage	Rural Villages in Eastern Poland; Katsina State (Nigeria, semi-arid); Natural Landscape (peri-urban/rural context of Canberra, Australia)

Source: Processed by the author, 2025

POS can also be classified based on ownership into three categories: government-owned, urban/private, and community-managed spaces (Kępkowicz, 2024). This approach emerges to link spatial accessibility with the level of surveillance and control applied to the space (Ignatieva & Mofrad, 2023). Public authorities manage government-owned POS and are generally fully accessible to the public, such as Taman Suropati in Jakarta, which is administered through regional government funding (APBD) (Dissa, 2025). Urban/private POS are located on privately owned land but remain publicly accessible under certain regulations, such as Pseudo-Public Parks and Consumer's Paradise in Hong Kong, which developers control

E-ISSN:
2721-13988

(Jian et al., 2021). Meanwhile, community spaces are managed by local groups or community organizations, such as the Makabarta (Burial Ground) in Nigeria, which is overseen by community leaders or local institutions (Muhammad et al., 2022). Overall, the ownership-based classification shows that management structure determines the degree of access, control, and social function of POS, making it an important consideration in designing inclusive policies that respond to community needs.

Another classification is based on the social nature of POS, which categorizes open spaces into public, semi-public, and private (Kępkowicz, 2024). Public spaces include areas that are fully open and accessible to everyone without significant restrictions, serving as primary venues for social interaction and mass recreation (Obadiah & Baba Haruna, 2025; Vujadinovic, 2016). An example is the Aloon-aloon in Semarang, which functions as a public green open space within the government center (Harjanti & Anggraini, 2020). Semi-public spaces remain accessible to the public but with certain limitations, such as regulated opening hours, activities dominated by specific communities, or management-imposed rules. An example is Taman Martha Christina Tiahahu (Literacy Park) in Jakarta, which is privately managed through a quasi-market approach (Dissa, 2025). Meanwhile, private spaces are exclusive and accessible only to specific residents or users, and therefore do not qualify as public spaces in the traditional sense (Nochian et al., 2015). Examples include front yards, private gardens, or office courtyards in Manado, which are categorized as non-public open spaces (Wuisang et al., 2023). This access-based classification highlights that the degree of openness, not merely the function, determines a space's role in supporting social interaction, making it an essential aspect for understanding the quality and inclusivity of POS.

Overall, the spatial context classification shows that POS vary significantly across urban, suburban, and rural environments, each shaped by distinct socio-economic dynamics, spatial structures, and cultural practices. Urban POS tend to be formally designed, multifunctional, and institutionally managed to support high-intensity activities, while peri-urban POS exhibit transitional characteristics, emerging organically in unplanned settlements or through structured suburban development, reflecting a hybrid urban-rural dynamic. In rural areas, POS are largely informal, community-oriented, and closely linked to the natural landscape and traditional social life. A complementary classification based on ownership and access levels further reveals that governance arrangements and levels of accessibility significantly influence the social, economic, and symbolic functions of POS. Together, these perspectives highlight that POS are highly context-dependent spaces, whose forms, uses, meanings, and governance structures evolve according to the spatial and socio-cultural settings in which they are situated. Understanding this contextual variation is crucial for developing inclusive, responsive, and place-sensitive approaches to POS planning and management.

3.4 General Classifications

Based on the 29 articles analyzed, this chapter presents the classification trends of public open spaces identified in the literature. Across the articles, a variety of discussion foci were identified, reflecting the diversity of open space forms and characteristics across contexts. Classification based on form indicates that Parks/Gardens is the most frequently discussed type of public open space. Linear spaces, including streets, pedestrian paths, and green corridors, also rank high, underscoring their significant role in urban structure and connectivity. Meanwhile, Squares/Plazas are frequently discussed as civic spaces, namely, primary public

PROCEEDINGS OF THE INTERNATIONAL CONFERENCE OF GRADUATE SCHOOL ON SUSTAINABILITY (ICGSS)

10th International Conference on Sustainability (ICoS10)
University of Merdeka Malang, November 15, 2025
https://jurnal.unmer.ac.id/index.php/icgss

E-ISSN:
2721-13988

spaces that serve as centers for community gatherings and activities. These classification trends are more clearly shown in Figure 1.

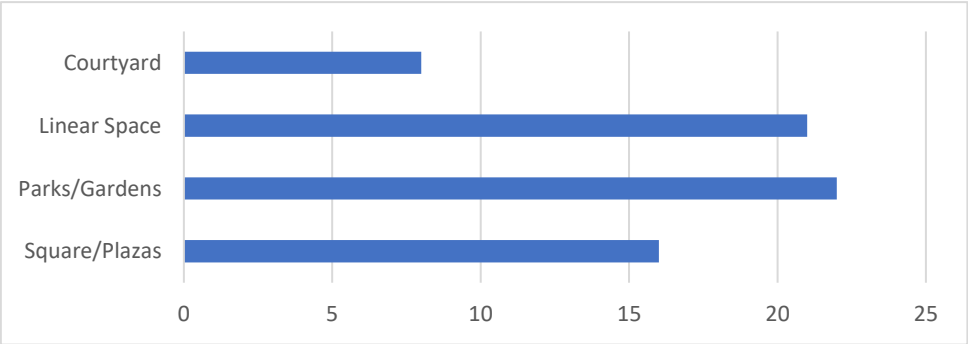

Figure 1. Trend in the Number of Articles Discussing the Classification of Public Open Spaces Based on Form

Source: Processed by the author, 2025

Regarding surface types, there is a relatively balanced tendency between discussions of green and gray space. This finding indicates that the classification of public open spaces in contemporary research not only emphasizes the importance of green space but also recognizes the strategic role of hardscape in supporting the functions, activities, and dynamics of urban areas. This classification trend is more clearly shown in Figure 2.

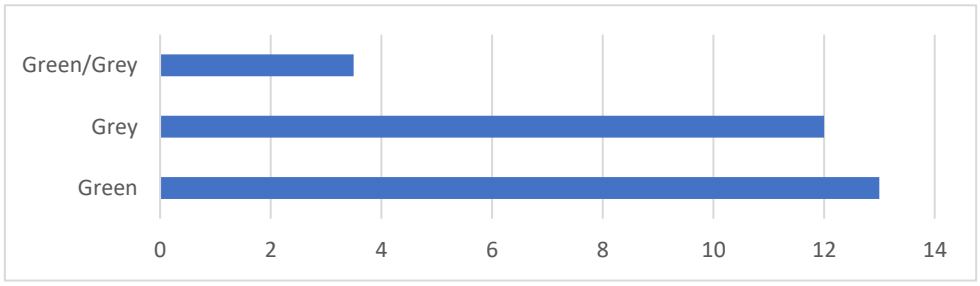

Figure 2. Trend in the Number of Articles Discussing the Classification of Public Open Spaces Based on Surface Type

Source: Processed by the author, 2025

Classification based on function indicates that recreational, ecological, and social functions are the most frequently identified roles of open spaces. The dominance of these three functions reflects the research focus on improving the quality of life for communities and environmental sustainability. Furthermore, structural and economic functions also receive significant attention, indicating that open spaces are viewed not only as activity venues but also as planning assets and elements capable of generating value for the surrounding area. The comprehensive (multifunctional) category that emerges both explicitly and implicitly in these studies confirms that modern open space typologies ideally reflect multiple or layered roles. This approach demonstrates the understanding that a single open space can simultaneously perform several important functions within an urban system. This classification trend is more clearly shown in Figure 3.

PROCEEDINGS OF THE INTERNATIONAL CONFERENCE OF GRADUATE SCHOOL ON SUSTAINABILITY (ICGSS)

10th International Conference on Sustainability (ICoS10)
University of Merdeka Malang, November 15, 2025
https://jurnal.unmer.ac.id/index.php/icgss

E-ISSN:
2721-13988

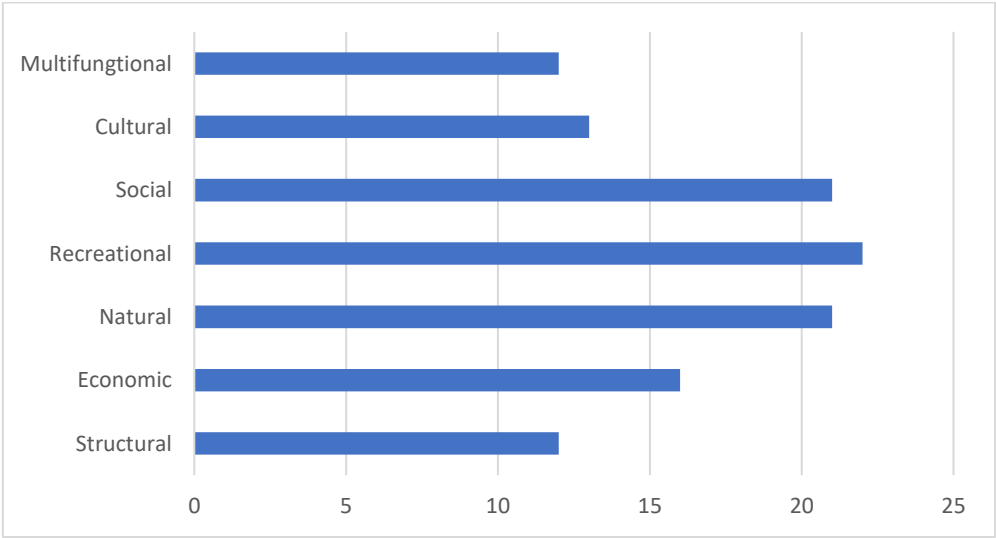

Figure 3. Trend in the Number of Articles Discussing the Classification of Public Open Spaces Based on Function
Source: Processed by the author, 2025

In a spatial context, most research focuses on open spaces within the boundaries of large cities or metropolitan areas. These studies generally analyze the challenges of high-density urban regeneration and public space management in urban environments, as illustrated by case studies of cities such as Hong Kong, Delhi, and Jakarta. The peri-urban category encompasses suburban areas, unplanned peri-urban settlements, and transition zones known in European literature as "Territories-in-Between" (TiB) or "Small Centralized Settlements." Research in this category primarily focuses on the changing character of spaces under pressure from urban growth and the expansion of built-up areas. A small number of other studies address rural contexts and other categories, which, while not dominant, still provide a picture of the varying character of public open spaces outside urban and peri-urban areas. In more detail, the trends in this classification are shown in Figure 4.

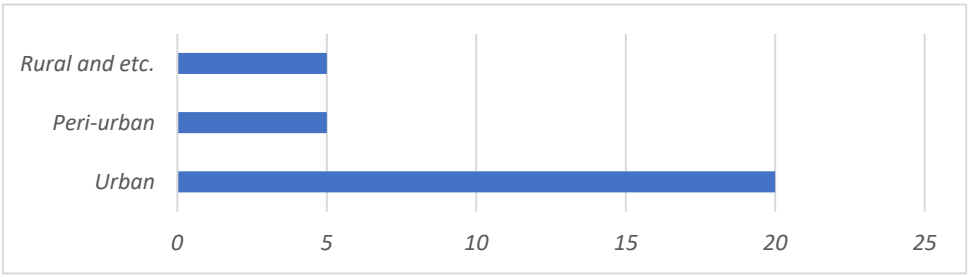

Figure 4. Trend in the Number of Articles Discussing the Classification of Public Open Spaces Based on Spatial Context
Source: Processed by the author, 2025

Overall, this synthesis demonstrates that understanding of public open space has evolved toward a more integrative, contextual approach. Classification does not stand as separate categories, but rather as an interconnected framework. The form of a space influences its function, the type of surface determines the activities that may occur, and the spatial context shapes the character and needs of the space. Thus, public open space is understood as a multidimensional urban element that is flexible and adaptive, and that plays a strategic role in improving environmental quality and community well-being.

E-ISSN:
2721-13988

4 Conclusion

First, this study synthesizes diverse approaches to Public Open Space (POS) classification into a coherent, multidimensional framework. Classifications by form, surface type, function, spatial context, ownership, and access are shown to be interrelated rather than separate categories. This synthesis clarifies that physical configuration, surface composition, and governance are inseparable from social, ecological, economic, and cultural roles, thereby providing a more structured theoretical basis and a practical reference for analyzing, designing, and managing POS.

Second, the review of 29 publications from 2012 to 2025 reveals several dominant POS types and emphases in the literature. Parks/Gardens and Linear Spaces (streets, paths, corridors) are the most frequently discussed forms, with Squares/Plazas highlighted as key civic spaces. Green and grey spaces appear in roughly balanced proportions, while recreational, ecological, and social functions are the most emphasized. Most studies focus on urban cores, followed by peri-urban areas, with rural contexts less represented. These trends indicate that contemporary research primarily foregrounds multifunctional, green, and urban-oriented POS, while gradually expanding toward more context-sensitive perspectives.

Acknowledgment

The author declares that this paper has not received any external funding. This paper is the result of a literature review conducted at the Master of Architecture Program, Merdeka University, Malang. The author expresses his deepest gratitude to the lecturers, reviewers, and all parties who have provided guidance, constructive feedback, and scientific support during the completion of this work. Special appreciation is also extended to the literature sources that have provided valuable insights for the synthesis and analysis presented in this narrative literature review.

References

Ahirrao, P., & Khan, S. (2021). Assessing public open spaces: A case of city Nagpur, India. *Sustainability (Switzerland)*, *13*(9). https://doi.org/10.3390/su13094997

Alexander, R. (2012). *Classification framework for public open space* (Issue November). Department of Sport and Recreation.

Alfatih, A., Sartika, D. D., & Enh, D. H. (2018). Public Policy on Green Open Space Development in Palembang City, Indonesia. *International Journal of Social Science and Humanity*, *8*(2). https://doi.org/10.18178/ijssh.2018.8.2.933

Babita, S., Mohammad, K., Thi, H., Mohammad, H., Khan, F., & Rahman, A. (2019). Assessment of public open spaces (POS) and landscape quality based on per capita POS index in Delhi , India. *Springer Nature Journal*, *March*.

Berenji, S. S. (2024). *An investigation into the typology of the Medina public open spaces in Fes and Meknes*. *October 2017*.

Crnic, M. (2014). Public open spaces of small centralised settlements: researching the typology. *THE CREATIVITY GAME -Theory and Practice of Spatial Planning*, *2*, 054–064. https://doi.org/10.15292/iu-cg.2014.02.054-064

Cruz, J. M. Dela, & Navarra, N. (2025). *Typologies of Open Space in Quezon City ' s Lifestyle-Tourism District Typologies of Open Space in Quezon City ' s Lifestyle - Tourism District*. 0–10. https://doi.org/10.1088/1755-1315/1092/1/012023

Dissa, R. R. (2025). *Public vs . Private : A Comparative Study of Public Space Management in Jakarta , Indonesia* (Issue May). Graduate School of Architecture, Planning, and Preservation Columbia University.

Harjanti, I. M., & Anggraini, P. (2020). Green Open Space Functions in Kauman Area , Semarang City , Indonesia. *Journal of Architectural Design and Urbanism*, *3*(1), 1–9. https://doi.org/10.14710/jadu.v3i1.7164

Ignatieva, M., & Mofrad, F. (2023). Understanding Urban Green Spaces Typology's Contribution to Comprehensive Green Infrastructure Planning: A Study of Canberra, the National Capital of Australia. *Land*, *12*(5). https://doi.org/10.3390/land12050950

Ischak, M., Pratiwi, S. N., Winandari, M. I. R., Wijayanto, P., & Olivia, D. (2023). The Typology of Public Open Space in Peri-Urban Unplanned Settlement. Case Study: Kampong of Kalipaten, Tangerang, Indonesia. *Indonesian Journal of Urban and Environmental Technology*, *6*(1), 36–48. https://doi.org/10.25105/urbanenvirotech.v6i1.15829

Jian, I. Y., Yung, E. H. K., Luo, M. J., Chan, E. H. W., & Chen, W. (2021). *A typological study of Public Open Space in Private Developments in Hong Kong*.

Kępkowicz, A. (2024). *Suburban Public Open Space – Types of Gathering and Recreation Places Developed under Mature Urban Planning: A Case Study of Bunnik Commune , the Netherlands Suburban Public Open Space – Types of Gathering and Recreation Places Developed under Mature Urb*. Preprints.org. https://doi.org/10.20944/preprints202408.0621.v1

Kongphunphin, C., & Srivanit, M. (2021). A multi-dimensional clustering applied to classify the typology of urban public parks in bangkok metropolitan area, Thailand. *Sustainability (Switzerland)*, *13*(20). https://doi.org/10.3390/su132011426

Marshall, S., & Zhang, Y. (2018). *Towards a typomorphology of public spaces: Relating place type and measures of enclosure*. *September*, 1555–1565.

Martin, E. (2022). *The Struggle for American Public Space*. Schultz-Werth Award Papers.

Muhammad, G. U., Maulan, S., Yusof, M. J. M., & Ibrahim, R. (2022). Typology and Ownership of Rural Open Spaces in Semi-Arid Regions: a Case of Katsina State, Nigeria. *Alam Cipta*, *15*(1), 42–47. https://doi.org/10.47836/AC.15.1.Chapter06

Nahdiyin, N. A. (2023). Penelitian Kinerja Pustakawan di Perpustakaan melalui Database Google Schoolar: Narrative Literature Review. *Jurnal Kajian Perpustakaan Dan Informasi*, *7*(2), 227–239.

Nochian, A., Tahir, O. M., Maulan, S., & Rakhshandehroo, M. (2015). A comprehensive public open space categorization using classification system for sustainable development of public open spaces. *ALAM CIPTA, International Journal on Sustainable Tropical Design Research & Practice*, *8*(spec.1), 29–40.

Obadiah, B., & Baba Haruna, B. (2025). Examination of the Typology of Public Open Spaces in Lafia Town, Nasarawa State, Nigeria. *IIARD International Journal of Geography &*

E-ISSN:
2721-13988

Environmental Management, *11*(1). https://doi.org/10.56201/ijgem.vol.11.no1.2025.pg28.49

Pattacini, L. (2021). Defining public open spaces : an investigation framework to inform planning and design decision-making processes inform planning and design decision-making processes ABSTRACT. *Landscape Research*, *00*(00), 1–20. https://doi.org/10.1080/01426397.2021.1881947

Pokharel, R. P., & Khanal, N. R. (2018). Open Space: Typology and Distribution in Pokhara Lekhnath Metropolitan City. *Geographical Journal of Nepal*, *11*, 25–44. https://doi.org/10.3126/gjn.v11i0.19547

Putri, S. K., Rukmana, E. N., & Saepudin, E. (2022). Narrative Literature Review Penelitian Perpustakaan Digital sebagai Sumber Pembelajaran Saat Covid-19 dalam Database Google Schoolar. *Jurnal Perpustakaan Universitas Airlangga*, *12*(2), 90–101.

Shofwan, M., Handoko, V. R., & Darmawan, A. (2024). Identification Of Typology Of Green Open Space (RTH) In The Sidoarjo Mud Disaster Area. *Asian Journal of Management …*, *04*(01), 663–674. http://ajmesc.com/index.php/ajmesc/article/view/652%0Ahttp://ajmesc.com/index.php/ajmesc/article/download/652/419

Soszyński, D., & Kamiński, J. (2022). A typology of rural public places, on examples from Eastern Poland. *Bulletin of Geography. Socio-Economic Series*, *58*(58), 155–167. https://doi.org/10.12775/bgss-2022-0040

Veliu, S., & Sylejmani, M. (2020). *Typology of neighborhood public open spaces : case study of Pristina*. https://knowledgecenter.ubt-uni.net/conference/2020/asp/1

Vujadinovic, M. (2016). *A Typological Classification of Neighbourhood Public Open Spaces: A Case Study of Novi Grad-Podgorica*. *14*(1), 111–121. https://doi.org/10.2298/FUACE1601111V

Wandl, A., Rooij, R., & Rocco, R. (2017). Towards Sustainable Territories-in-Between: A Multidimensional Typology of Open Spaces in Europe. *Planning Practice and Research*, *32*(1), 55–84. https://doi.org/10.1080/02697459.2016.1187978

Wen, L., Kenworthy, J., & Marinova, D. (2020). Higher Density Environments and the Critical Role of City Streets as Public Open Spaces. *Sustainability (Switzerland)*, *12*.

Wuisang, C. E. V, Rondonuwu, D. M., Sela, R. L. E., & Tilaar, S. (2023). Characteristics of Public Green Spaces and Efforts in Enancing the Quality and Function Using Trivalent Approch: Case of Manado City, Indonesia. *Eduvest*, *3*(2), 309–326.

Yang, J., Zhang, F., & Shi, B. (2019). *Analysis of Open Space Types in Urban Centers Based on Functional Features*. *01009*.