



**NEAR EAST UNIVERSITY
INSTITUTE OF GRADUATE STUDIES
DEPARTMENT OF ARCHITECTURE**

**EVALUATING QUALITY OF PUBLIC OPEN SPACES FOR
SUSTAINABLE URBAN GROWTH:
A CASE STUDY OF MILLENNIUM PARK ABUJA, NIGERIA**

M.Sc. THESIS

MOHAMMED ISA ISA

**Nicosia
June, 2023**

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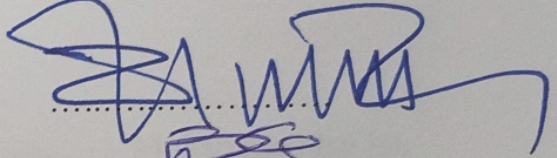
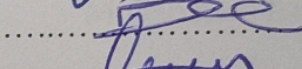
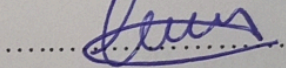
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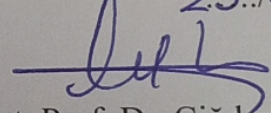
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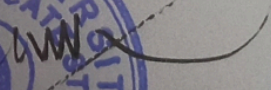
We certify that we have read the thesis submitted by Mohammed Isa Isa titled “Evaluating Quality of Public Open Spaces for Sustainable Urban Growth: A Case Study of Millennium Park Abuja, Nigeria” and that in our combined opinion it is fully adequate, in scope and in quality, as a thesis for the degree of Master of Applied Sciences.

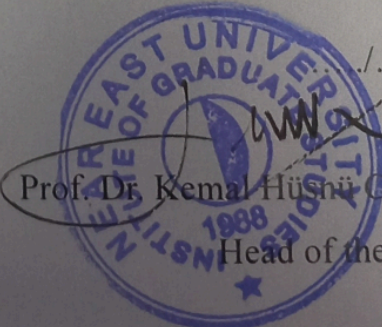
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Declaration

I hereby declare that all information, documents, analysis and results in this thesis have been collected and presented according to the academic rules and ethical guidelines of Institute of Graduate Studies, Near East University. I also declare that as required by these rules and conduct, I have fully cited and referenced information and data that are not original to this study.

Mohammed Isa Isa

29 / 05 / 2023
Day/Month/Year

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First, to my dear parents, Dr. Mohammed Isa Umar and Fatima Asabe Muhammad, I am forever grateful for your unwavering love, support, and encouragement throughout my academic journey. You have been my pillars of strength, and I owe my success to their unwavering dedication and sacrifice. I also want to extend my heartfelt appreciation to my dear siblings, thank you for being my constant source of inspiration and motivation. Your love and support have been invaluable.

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Mohammed Isa Isa

Abstract

Evaluating Quality of Public Open Spaces for Sustainable Urban Growth: A Case Study of Millennium Park Abuja, Nigeria

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Urbanization and population growth are transforming cities across the globe, with increasing pressure on public open spaces to meet the needs of growing populations. In Nigeria, as in many other countries, rapid urbanization has led to significant challenges in ensuring that public open spaces are of high quality and contribute towards sustainable urban growth. This thesis focuses on the evaluation of the quality of public open spaces in Abuja, Nigeria, using Millennium Park as a case study. It is anticipated that Abuja's population will continue to increase in the years to come, hence it is crucial to assess the quality of public open spaces and their potential to support sustainable urban growth. The study collected data on the residents of Abuja, the public open spaces in the city, the accessibility, the features of Millennium Park, and the potential for long-term sustainability through on-site visits and questionnaires. The findings reveal that in spite of challenges such as poor accessibility, including the great distance to the park and an inefficient public transport system, residents still like and visit the park because of its fascinating landscape and recreational possibilities. Despite these challenges, the park possesses good qualities that contribute to sustainable urban growth, such as promoting social interaction, improving the quality of life of residents, and providing economic opportunities for local businesses. The study recommends improving the park's accessibility, enhancing maintenance, and providing adequate park furniture and public services. Overall, this study provides valuable insights into the quality of public open spaces in Abuja, Nigeria, highlighting the importance of such spaces for sustainable urban growth.

Key Words: public open space, urban park, sustainable urban growth, sustainable development, Millennium Park Abuja

Özet

Sürdürülebilir Kentsel Büyüme için Kamuya Açık Alanların Kalitesinin Değerlendirilmesi: Millennium Park Abuja, Nijerya Örneği

Isa Isa, Mohammed
M.Sc., Mimarlık Bölümü
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Kentleşme ve nüfus artışı, artan nüfusun ihtiyaçlarını karşılamak için kamusal alanlar üzerindeki artan baskıyla birlikte dünya genelinde şehirleri dönüştürüyor. Nijerya'da, diğer birçok ülkede olduğu gibi, hızlı kentleşme, kamusal açık alanların yüksek kalitede olmasını ve sürdürülebilir kentsel büyüme katkıda bulunmasını sağlamada önemli zorluklara yol açmıştır. Bu tez, Millennium Park'ı bir alan çalışması olarak kullanarak Nijerya'nın Abuja kentindeki kamusal açık alanların kalitesinin değerlendirilmesine odaklanmaktadır. Abuja'nın nüfusunun önümüzdeki yıllarda artmaya devam edeceği tahmin edilmektedir, bu nedenle kamusal açık alanların kalitesini ve sürdürülebilir kentsel büyümeyi destekleme potansiyellerini değerlendirmek çok önemlidir. Çalışmada, yerinde ziyaretler ve anketler yoluyla Abuja sakinleri, şehirdeki halka açık alanlar, erişilebilirlik, Millennium Park'ın özellikleri ve uzun vadeli sürdürülebilirlik potansiyeli hakkında veri toplandı. Bulgular, parka çok uzak olması ve verimsiz bir toplu taşıma sistemi dahil olmak üzere yetersiz erişilebilirlik gibi zorluklara rağmen, sakinlerin büyüleyici manzarası ve rekreasyon olanakları nedeniyle parkı hala sevdiğini ve ziyaret ettiğini ortaya koyuyor. Bu zorluklara rağmen park, sosyal etkileşimi teşvik etmek, sakinlerin yaşam kalitesini iyileştirmek ve yerel işletmeler için ekonomik fırsatlar sağlamak gibi sürdürülebilir kentsel büyüme katkıda bulunan iyi niteliklere sahiptir. Çalışma, parkın erişilebilirliğinin iyileştirilmesini, bakımın artırılmasını ve yeterli park mobilyası ve kamu hizmetlerinin sağlanmasını önermektedir. Genel olarak, bu çalışma, Nijerya'nın Abuja kentindeki kamusal açık alanların kalitesine ilişkin değerli bilgiler sağlamakta ve bu tür alanların sürdürülebilir kentsel büyüme için önemini vurgulamaktadır.

Anahtar Kelimeler: kamusal açık alan, kentsel park, sürdürülebilir kentsel büyüme, sürdürülebilir kalkınma, Millenium Park Abuja

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List of Abbreviations

ATM:	Automated Teller Machine
FCT:	Federal Capital Territory
MDGs:	Millennium Development Goals
MPI:	Multidimensional Poverty Index
NBS:	National Bureau of Statistics
POS:	Public Open Space
SDGs:	Sustainable Development Goals
SPSS:	Statistical Package for Social Sciences
UHI:	Urban Heat Island

CHAPTER I

Introduction

Background to Study

In recent decades, population boom and unprecedented urban sprawl, rural to urban migration, due to economic depression, has resulted to hysterical development of natural green spaces to urban infrastructures, thereby altering the micro climatic conditions and exacting pressure on the immediate local environment. The immense burden on urban centres because of the aforementioned factors has led to poor quality of the environmental, economic and social pieces of urban life (Girardet,2008; Lehmann, 2010). Consequently, forming threats to sustainable, healthy and qualitative urban life of present and future cities. United Nation's, Economic and Social Affairs Department projected that by end of the next decade more than sixty percent of the global populace would be residing in urban centres (UNESA, 2014). Currently, urban centres occupy only about three percent of the Earth's surface (UNESA, 2014), but they contribute to approximately seventy-five percent of overall energy usage, eighty percent of emissions that contribute to climate change, and have significantly depleted the Earth's valuable resources (Gret-Regamey et al., 2013).

Cities record higher temperatures and are more humid as a result of emissions of vehicles and industries, human heat sources, loss of natural green to bland concrete covers, high-rise buildings and dense developments, are among a plethora of other reasons, induced by rapid urban population growth. Also, the formation of urban heat island (UHI) is as a result of the negative pressure on cities. Oke (1976) described urban heat island as the relative difference in temperature in urban cities compared to nearby cooler suburban and rural settlements. The temperature difference between urban and rural areas increases at night when heat that has been trapped in the urban landscape is progressively released.

Most stakeholders and governments have adopted development of public open spaces (POS) as a viable approach to fighting the challenges that come with urbanization, and as an ingenious route to improving both social life of residents and environmental quality. Lately, there are wide range of studies across different fields highlighting the positive impact of public open spaces on local communities and the larger environment. Amongst the benefits of public open spaces is sustainable development (Jennings et al., 2016), which includes the social, economic and environmental dimensions (Mohamed & Zhirayr, 2013; Kaczynski & Henderson, 2008; Tabassum & Sharmin, 2013; Charkiolakis et al., 2008). The importance of public open spaces cannot be overemphasized in the study of the different facets of urban life, serving as tool for assessing the social, economic, ecological, cultural and political dynamics of the growing population of urban centres.

Public open space carries the genes and identities from past to present and future generations to come. It is an important part of urban settlement that protects the heritage and unique values of a people (Hume City Council, 2003). Open spaces have been for long associate with improving the condition of living of residents and the city natural environment (Martinelli, et al., 2014). Public open space is a feature of the built environment that contributes to an area's liveability and is vital for residents' health and communal development (Villanueva et al., 2015). Proper planning and networks of public open spaces in urban planning provides relief for the populace and environment (Veitch et al., 2013). Good spatial networks encourage people to commute safely on foot or by bicycle. (Brander & Koetse, 2011). Social benefits of well-planned and maintain public spaces maybe the most profound of all its benefits, as it provides avenue for leisure and other communal engagements (Khotdee, et al., 2012). Amid the economic benefits are it enhances the value of local businesses and land, adding to the attraction of the area to customers and visitors (Wu & Plantinga, 2003). Basically, the role qualitative and good public open spaces play to urban communities is very crucial to all stakeholders and for sustainable urban growth.

As was the case with the notion of sustainable development, there is no widely agreed-upon definition of what constitutes a sustainable city. Additionally, there are numerous criteria and indicators that have been devised to measure these features. Aspects of urban planning and community development are frequently included (Anna, 2003).

Quality of life concerns are essential to all the different definitions of a sustainable city, in addition to environmental factors (like air quality, clean water, energy conservation, refuse recycling, vegetation, transportation, etc.). When discussing what makes a city liveable, comfortable, and appealing for its residents, terms like "number of public open spaces per person," "public parks," and "recreational facilities" are frequently used. It is firmly believed that creating more sustainable cities involves not only enhancing the biological and ecological elements of urban life but also the social dimensions, or the perceptions, experiences, and fulfilment of the people living there regarding the quality of their daily lives (Beer, 1994).

Statement of the Problem

The loss of natural green and open spaces to urbanisation in urban settings has become an important research topic, for sustainable development, on a national and international level (Lin et al., 2015); coupled with projection of urban population to surpass the population of rural settlements (UNESA, 2014) has alarmed governments and stakeholders at the looming biological and ecological crisis. Additionally, urban open spaces provide huge environmental boost through improving micro climate and air quality as well as providing social and economic platform, which is crucial for wellbeing and satisfaction of urban residents. Park quality is a striking facet that determines park usage and how users interact (Abdullah, 2008). According to some research, the existence of one or required number of park attributes, like amenities, accessibilities, aesthetic qualities, security, maintenance, cleanliness, furniture, constitutes a park's quality. Besides objective factors like park qualities, subjective feedbacks like user perceptions and human needs are also considered crucial for determining park quality. The

evaluation of the quality of public open spaces should take into account a wide range of factors, including both objective and subjective factors as well as physical park features (Aytur et al., 2015; Hughey et al., 2016; Bird et al., 2015; Gidlow et al., 2012).

The majority of international efforts to protect the natural environment are focused on either large biodiversity and relatively unspoiled ecosystems or specific animal or plant species that are endangered or extinction-threatened. In contrast, urban green and open spaces like parks, which are the nature that is close to where people live and work, are receiving less scientific and political attention. Most research have either examined the adequacy and equitable distribution of urban open spaces in association to fighting climate change and improving urban dwellers social life, or studied benefits of public open spaces to ecology and human development. Only a few studies examined the qualities of developed public open spaces and users' perceived quality.

Furthermore, in Nigeria similar studies focus on recording micro climate around public parks like Chibuike et al. (2018) study. Hence, there is need for exploring qualities of the parks in Nigeria. Therefore, this thesis focuses on evaluating quality of public open spaces for sustainable urban growth, exploring Millennium Park Abuja, Nigeria as a case for study.

Purpose of the Study

The research is aimed at exploring the quality of public open spaces via Millennium Park Abuja, Nigeria. Also;

1. To understand strategies employed in evaluating quality of public open spaces.
2. To identify factors that affects urban residents' access to public open spaces in Abuja, Nigeria.
3. To identify and evaluate park attributes that enhance the quality of public parks in Nigeria.

Research Questions

The questions this research seeks to answer are:

1. How can quality of public open spaces be explored?
2. What factors determine the level of urban dwellers' access to public open spaces in Abuja, Nigeria?
3. What are the park attributes that enhance the quality of public parks in Nigeria?

Research Hypotheses

The research hypotheses are:

1. Factors like; distance, security, access to public transport, streets, parking and sidewalks affect the access to public Open Spaces.
2. Park attributes like; attraction, security, convenience, maintenance and landscape affect the perception of quality of parks.

Significance of the Study

It is debatable how quickly Nigeria's urban population will increase in the coming decades, but it has increased significantly over the past 50 years. According to Africapolis (2009) and the United Nations (2014), Nigeria's urban population increased by a factor of 10 between 1950 and 1990, from around 3 million to roughly 30 million. Nigeria's population growth and urban sprawl against time is in constant rise. Cities and states capitals have seen the influx of people as a result of; Internally displaced persons from the war against insurgency across the Sahel region of the country and continent in general, persons seeking economic stability following a recession in 2016 and effect of covid19 outbreak on businesses in 2020, flooding of settlements near natural water sources, etc. It is in this vein that the United Nation 2014 report projected the urban population of Nigeria to hit 108.7 million by 2020, which is already past. Abuja, being the state capital of Nigeria, is at the centre of this unprecedented urbanisation. Therefore, there is serious need for provision of qualitative public services, like public parks,

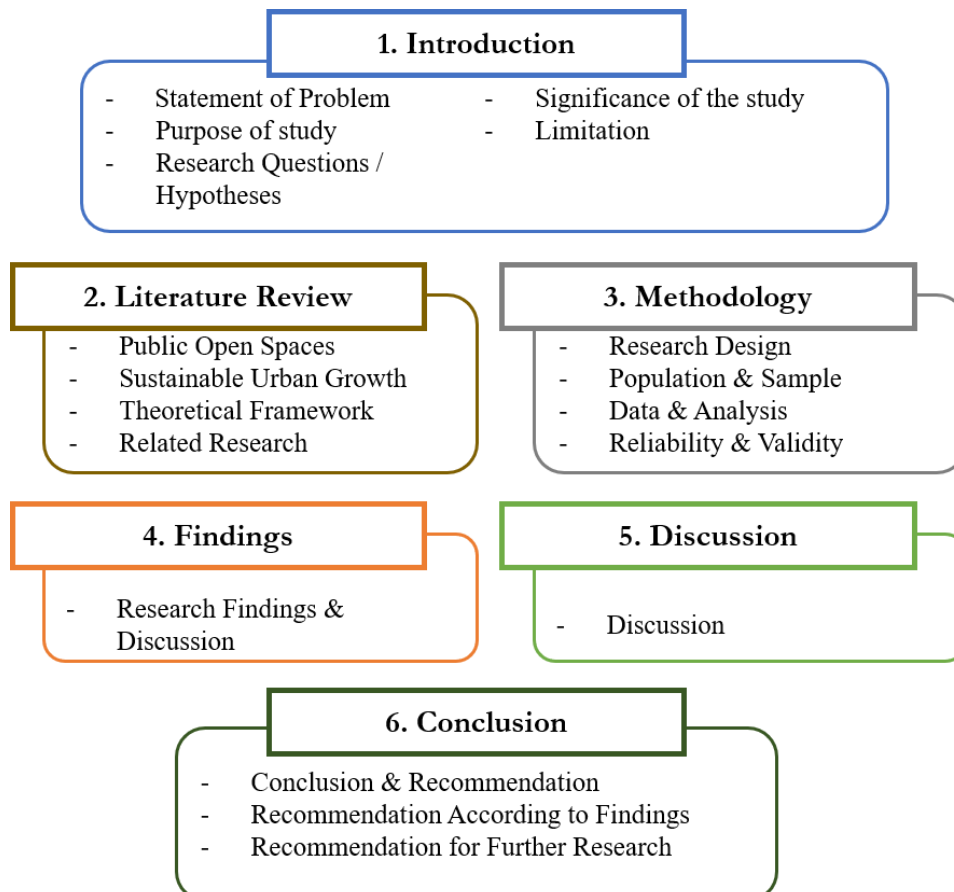
to integrate all residents. This research will provide valuable insight on the accessibility of Abuja residents to public parks and will highlight park attributes that enhance the quality of public parks in Abuja and Nigeria in general.

Research Outline

Research outline presents the study plan, structure, and procedures to achieve the research goal. This includes an introduction outlining the research topic, a literature review summarizing prior studies, a methodology section outlining the research's approach, findings presenting the results, a discussion section explaining the findings, and a conclusion section summarizing the study and providing recommendations.

Figure 1

Research Outline



Limitations

Studying the quality of Public Open Spaces is a very vast subject hence; this research is interested in studying the quality of public park from both users' perception and objective data analysis points of views, in the context of sustainable urban growth. Promoting quality of life, healthy life, air and water quality, ecological conservation and biodiversity. However, the research work will only focus on the physical qualities of Millennium Park in Abuja, Nigeria's capital city.

Definition of Terms

Public Open Space

Public open space is any undeveloped property or land without buildings (or other built structures) that is accessible to the general public, provides recreational activities for locals, and enhances the visual appeal and environmental quality of neighbourhoods (UN-Habitat, 2018).

Urban Park

Urban Park is any public space set aside for the general public's aesthetic, educational, recreational, or cultural use in an area that is primarily urban in nature (Anna, 2003). Furthermore, Urban parks are lands that are situated in urban areas and are designated for public uses like as amusement, leisure, and educational and cultural fulfilment.

Sustainable Urban Growth

The social, economic, and environmental aspects of urban life are all taken into consideration while discussing sustainable urban growth. All sustainable development definitions emphasize the importance of balancing economic growth, social progress, and environmental protection in a way that does not deplete or harm essential resources and ecosystems, thus ensuring the well-being and prosperity of both present and future generations (Brundtland, 1987). Sustainable development in the context of urban settings entails establishing liveable and

sustainable urban environments that satisfy the demands of both present and future generations (Chiu, 2016).

Quality Evaluation

In the context of parks, quality evaluation refers to the assessment of a park's different features, such as its design, facilities, maintenance, and user experience, in order to establish the park's overall quality. It involves the use of various tools and techniques to collect data and analyze the information obtained to make informed decisions about the park.

CHAPTER II

Literature Review

Literature on public open spaces, its qualities and relationship to sustainable urban growth is presented in this segment, through analysis of existing research and papers relevant to this study, with the aim of establishing a theoretical background or framework of this study.

Public Space

A space, together with structures, forms the physical basis of urban form. It allows volumes to be ordered in patterns, resulting in streets, blocks, and plots—i.e., the elements of the layout that are consistent throughout all methods of urban morphology (Del Pinto, 2021). Space is the component of the urban network that connects buildings and is where social interaction takes place (Hillier, 2005). Literature also uses the term "place" to refer to a space where people are present and doing things. Hashemnezhad et al. (2013) use Tuan (1977) study to characterize a place in two different ways: first, they use symbols that are generally tied to the place's spatial organization, and second, they use experiences that are connected to people's everyday routines. As a result, it is clear that the place is important since it alludes to a mental, emotional, or cognitive link between people and their surroundings. According to Hashemnezhad (2013), a place becomes nothing more than a geographical location when no people are present, and the idea of a place can only be understood in the context of human presence. A place can be researched in many different scientific disciplines, including geography, philosophy, architecture, urban studies, etc. Places are important focal points of our immediate impressions of the world because they combine human and natural order (Relph, 1976). As a result, they are usually carried of deeper ideas, tangible objects, and active narratives. They are important sources of both personal and group identity. Additionally, they are very significant in the establishment of strong psychological and emotional ties (Relph, 1976). There are various scales on which the experiences of the place can vary. However, they are

whole entities made up of both natural and artificial items, as well as actions, functions, and meanings. It is possible to learn the basics about a place in a relatively short amount of time. On the other hand, getting a sense of a place takes more time. The majority of this feeling is made up of experiences from years of daily existence (Tuan, 1977). Because of this, a long-term residence fosters social relationships and the development of the place's identity. However, the realization is influenced by the nature and depth of the experiences (Jack, 2010).

In her book *Human Condition*, Arendt (1998), a theorist who concentrated on humanity, asserted that a public space is more than just a place where people naturally cohabit; rather, it is a world that has been created by humans where people look for peaceful coexistence. Two distinct public phenomena were mentioned by her. She began by arguing that everyone may see and hear anything that occurs in a public area. This is important since each person hears and sees things from a different perspective. Diversity in persons and thoughts is caused by the fact that people view the world from a wide variety of perspectives and angles. Second, in a shared world, which is connected to a human creation and the activities of others who live in the same artificial environment, publicity is conceivable. Despite referring to an intangible space as well, public spaces were made and occupied by individuals. Every time public spaces have been addressed in literature, they have allowed people to form relationships and associations with one another while separating each person's private area. According to Habermas (1991), situations and events are referred to as public when they are accessible to everybody. He claimed that etymologically speaking, the idea of the public is connected to the idea of the common, whereas the idea of the private is connected to the idea of the individual. Cities' central public areas serve as important locations for unrestricted gatherings of residents. It is a space for gathering, talking, agreeing, and doing things that is totally owned by citizens and where equality is supreme. Sennett (1977) defined public space as a location where people can gather and become conscious of the society in which they live. He claimed that the word "public" has been used in modern Western history from the

latter part of the 17th century. It takes on a form that is comparable of how it is currently used, especially among members of socialist society. The word public, which means open to everyone's control, began to be used in opposition to the word private, which refers to a living space only accessible to one's family and close friends, around the end of the 17th century (Sennett, 1977). In this respect, it may be said that the emergence of socialist society at the end of the 17th century marked the beginning of the shaping and acquisition of the meaning of public notions.

According to Tibbalds (2001), the public sphere is an essential component of towns and cities where a large amount of interpersonal interaction and communication takes place. People have physical and visual access to every aspect of the urban fabric. For this reason, it can extend beyond the town and city's streets, squares, and parks to the buildings that surround and line them. As per Madanipour (1999), public spaces are actual areas of a city that are open to everyone and have few limits on how locals and visitors can utilize them. Every member of society utilizes and shares public spaces, which are protected and managed by the government (Madanipour, 2003). The creation of a city's identity depends greatly on its public areas. They link the present with the past and the future in terms of time. Between them, they create reference points. Public space offers chance meetings that can bring people together and give their lives purpose and strength. In addition to providing a location for exceptional occasions, public spaces serve daily requirements (Carr et al., 1992). Carr et al. (1992) argued that public places ought to be democratic, responsive, and significant. They started by defining responsive spaces that were created to cater to the needs of people. These users' wants—comfort, relaxation, active and passive involvement, and discovery—can be viewed as fundamental needs that people seek to have satisfied in public spaces. Conversation, gardening, exercise, and other psychologically and physically healthy activities can be done in public spaces (Carr et al., 1992). Second, they claimed that democratic venues protect users' rights. They should be open to everyone in society and give them more freedom to behave than in

people's homes or places of employment. People learn how to coexist in that type of space because it is a shared resource. Finally, meaningful spaces allow people to connect places and their personal lives emotionally, which is connected to physical and social circumstances (Carr et al., 1992).

In the accounts of UN-Habitat (2018), public space includes streets and other open areas that are used by the general public and are available to everyone. The undeveloped portions of public buildings and open spaces are not included.

Also, according Carr et al. (1992), public spaces are open areas where people congregate for either solitary or social activity. Public facilities including sidewalks, benches for resting, water features, as well as tangible and aesthetically pleasing components like landscape elements, are typically found in public places. Both publicly owned and privately owned public places are accessible to the general public. The types of public spaces according to Carr et al. (1992) are;

- i. **Public parks;** such as city/central parks, common areas, neighbourhood parks, small or "vest-pocket" parks, etc.
- ii. **Squares and plazas;** such as memorials, corporate plazas, and centre squares.
- iii. **Marketplaces;** including traditional markets, shops, farmers' markets, etc.
- iv. **Streets;** such as town trails, pedestrian malls, transit malls, and streets with limited traffic.
- v. **Playgrounds;** including those in neighbourhoods, schools, and other public spaces.
- vi. **Community open spaces;** such as neighbourhood or local community centres, etc.
- vii. **Greenways and parkways;** such as connected natural and recreational areas.
- viii. **Atriums and indoor markets;** such as those found in malls, downtown retail areas, etc.

- ix. **Common or neighbourhood places**; such as a street corner, steps to a building, etc.
- x. **Waterfronts**; such as those on lakes, rivers, piers, harbours, and beaches.

Additionally, the Charter of Public Space emphasizes the importance of creating inclusive, accessible, and freely available spaces that prioritize the well-being and collective interests of the community (Garau, 2015). This definition of streets emphasizes the importance of public ownership. Public ownership ensures that everyone has consistent access to and can enjoy streets over time. The charter further discerns between four public space types;

- i. Streets,
- ii. Public open spaces,
- iii. Public facilities and
- iv. Public commercial spaces.

Streets

Streets are public spaces, owned and managed by the government, and available to everyone. They are often always available and free to use. Streets have several uses and host a variety of activities. They support social interactions, business transactions, cultural events, and political activities in addition to transportation. The make-up of the street space includes pavements, passageways, bicycle lanes, sidewalks, etc. However, it is important to note that not all spaces within urban areas are considered street space. Plots of land, whether developed or undeveloped, are not classified as street space. In addition, the concept of street space does not include open space blocks, railroads, covered areas within parking spaces, airports, or specific industrial sectors. Streets, with their diverse functions and components, play a critical role in facilitating movement, social interactions, and various urban activities.

Figure 2

A street in Osaka, Japan (Getty Images, 2022).



Public Open Spaces

These areas are designed for various recreational activities like playing, socializing, exercising, or celebrating. They offer opportunities for people to relax, enjoy nature, engage in leisure activities, or gather for community events. POSs encourage physical activity, promote social interactions, foster community engagement, and enhance the overall liveability of an area (UN-Habitat, 2020a).

Figure 3

A park in USA (Getty Images, 2019).

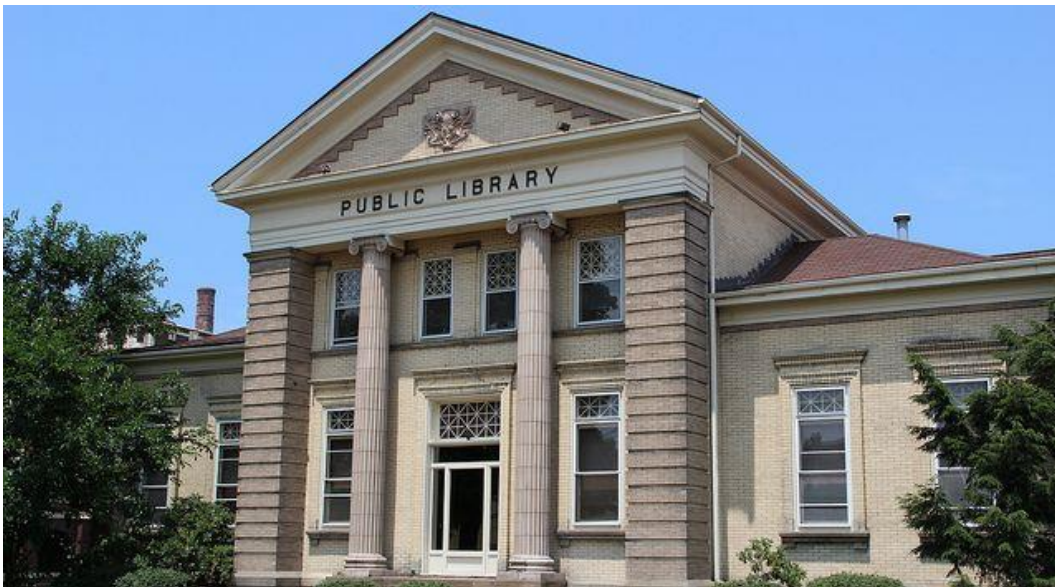


Public Facilities

Public facilities are government-owned amenities and spaces that are open to the public and free to use. Examples include libraries, civic centres, markets, and sports facilities. These facilities have designated operating hours and are accompanied by non-built-up areas that should be included in a city's public open space. Recognizing and integrating these spaces contributes to the well-being and quality of life of the community. However, managing public facilities in terms of free access may be challenging because some services are fee-based (UN-Habitat, 2018).

Figure 4

Carnegie Library in Ohio, USA (Getty Images, 2011).



Public Commercial Spaces

These spaces are designed to facilitate commercial activities and provide convenient access to goods, services, and entertainment options for residents and visitors. These spaces play a significant role in shaping the socioeconomic character of a city. (UN-Habitat, 2018).

Figure 5

Market in Cambodia (Getty Images, 2018a).



Public Open Spaces

Public open spaces are plots of land that are open to the public and are not occupied by buildings. These areas are set aside for recreational purposes and give locals the chance to enjoy leisurely outdoor pursuits. By providing green and natural areas, they enhance the neighbourhoods' environmental quality. Often include;

- i. Parks,
- ii. Squares
- iii. Gardens,
- iv. Zoos,
- v. Playgrounds,
- vi. Sports facilities,
- vii. Beaches,
- viii. Waterfronts etc.

The above spaces are usually maintained by the government and are open to everyone without payment. However, they are frequently only accessible during the day (UN-Habitat, 2018).

Figure 6

Square in the Grand Louvre Palace in Paris, France (Flickr, 2018).



Figure 7

Bay Singapore Public Garden (Flickr, 2017a)



Figure 8

Zoo in Australia (Flickr, 2017b).

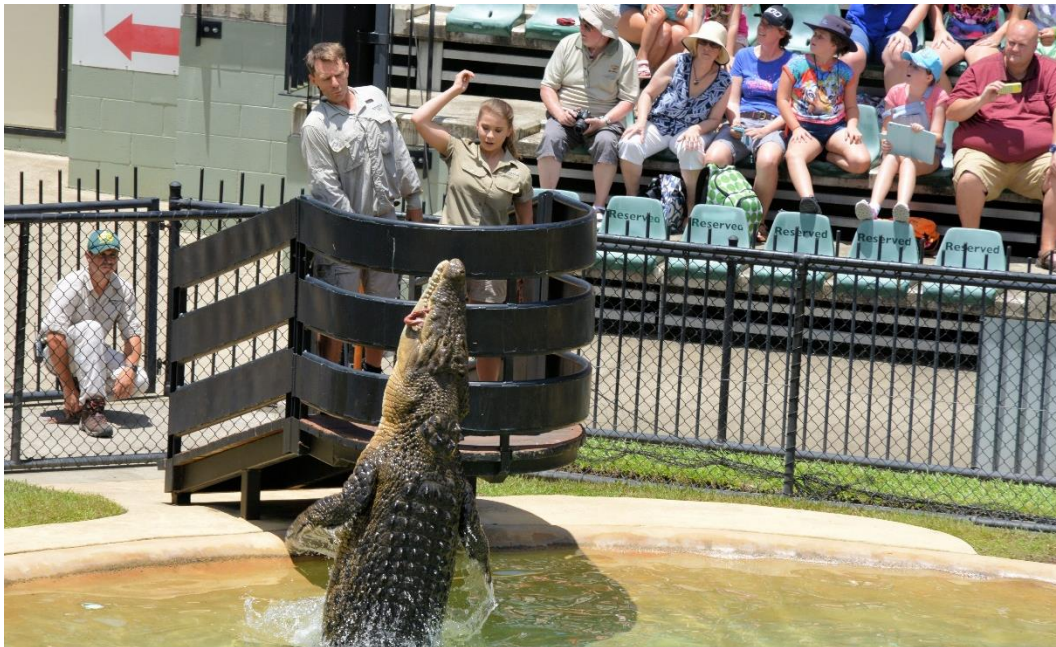


Figure 9

Beach in Cuba (Flickr, 2010)



Figure 10

Bull Wrestling Arena, Sport Facility (Getty Images, 2012).



Figure 11

Water Front in Germany (Getty Images, 2014).



Levels of Public Open Spaces

Based on their distinctive sizes, the areas they serve and the distance users are willing to go to get there, this categorization aids in our understanding of the numerous kinds of open spaces.

Local/pocket open public spaces:

Local open spaces are small parks that provide recreation for the nearby residential community within 400 meters of walking distance (5-minute walk). Their typical sizes range from 0.03 to 0.04 hectares and are frequently used for recreational activities. These may include modest natural spaces in some locales (UN-Habitat, 2018).

Neighbourhood public open spaces

Neighbourhood open spaces are bigger spaces that meet a community's social and recreational needs. Within 400 metres of homes, their areas, which range from 0.04 to 0.4 hectares, are easily accessible. They can be used for a variety of activities, including amusement, sports, and the preservation of natural elements (UN-Habitat, 2018).

District/city open spaces or city open spaces

District/city open places areas are primarily intended to accommodate formal controlled sports. They include sizable recreation areas as well as some natural environments. Players and guests come from neighbouring districts to play in the many neighbourhoods they serve. The areas, which range in size from 0.4 to 10 hectares, are intended to operate communities within 0.8 kilometres, or a 10-minute walk (UN-Habitat, 2018).

Regional open space/Big city parks

Regional open spaces are sizable amenities for organized recreation, communal engagement, unwinding, and enjoying nature. These spaces are usually big enough to attract visitors from different areas and can serve multiple regions or

communities. They can vary in size, typically ranging from 10 to 50 hectares according to UN-Habitat (2018).

National/metropolitan open public spaces

These are enormous sites, between 50 and 200 hectares in size. They accommodate several activities and provide recreational, sporting, and basic facilities (UN-Habitat, 2018).

Urban Parks

In the past, urban parks have evolved from unofficially designated graze area into multifunctional urban spaces for entertainment, retreat, and social gathering. An established definition of the term is impossible due to the change of urban parks' functions and purposes. The definition differs because it overlaps with other terms used in parks generally. Cranz (1982) argued, which revolves around the evolving and expansive nature of the term 'urban park' in the United States. She highlights how the term has become problematic and lost its precise meaning due to its adoption as a government institution. Previously, the term 'park' was more straightforward, commonly referring to designated areas of public land set aside for recreational purposes. Furthermore, Cranz mentions that the term 'park' now extends to encompass neighbourhood parks, downtown squares, scenic outlet areas, waterfront spaces, and land reservations. This demonstrates the inclusive nature of the term, encompassing both natural and man-made spaces intended for public use and enjoyment.

The urban park has also been defined by disciplines other than landscape architecture, notably by people drawn to the idea of place and space. For instance, in Maulan (2002), urban geographers broadened the term to include landscape elements that provide habitat for wildlife, passive and active recreation, and related positive impacts.

The most relevant and applicable definition of an urban park, according to Anna (2003), is any public space set aside for the general public's aesthetic,

educational, recreational, or cultural use in an area that is primarily urban in nature. Anna provides a comprehensive explanation of urban parks, which refer to pieces of land located in urban centres and specifically designated for public purposes like as amusement, leisure, and educational and cultural fulfilment.

Figure 12

An Urban Park In New York, USA (Getty Images, 2018b).



Benefits of urban parks

Urban residents use urban parks as public spaces that provide access to local culture. They offer confidence for physical activity, interpersonal contact, and exposure to nature—all of which have been associated with a range of health and wellbeing gains. This segment provides a summary of the research on urban parks benefits and their effects on people and communities.

i. Health Benefits of Urban Parks:

Exposure to urban parks has been linked favourably to a number of health outcomes, according to several studies. For instance, a systematic review by Kaczynski et al. (2014) discovered that exposure to green areas, especially urban

parcs, was linked to decreased rates of chronic diseases like diabetes and cardiovascular disease as well as reduced stress and enhanced mood. People who lived closer to urban parks had lower rates of obesity and higher levels of physical activity, according to a 2013 study by Astell-Burt et al.

ii. Economic Benefits of Urban Parks:

Additionally, urban parks support the local economy. For instance, research by Crompton (2001) discovered that urban parks can raise the value of neighbouring properties, increasing local governments' tax collections. Also, by bringing in visitors who spend more money at neighbouring businesses, urban parks can help the local economy.

iii. Social Benefits of Urban Parks:

Correspondingly, urban parks can work as a social centre for their neighbourhoods, giving residents a place to mingle and form relationships. People who frequently visit urban parks had greater levels of social cohesion, trust, and neighbourhood satisfaction than those who did not, according to a 2008 study by Sugiyama et al. Kuo & Sullivan (2001) revealed in another study that urban parks can promote social integration amongst various age groups and ethnic backgrounds.

iv. Environmental Benefits of Urban Parks:

Finally, urban parks can help the environment by lowering the effects of urban heat islands and enhancing the quality of the air and water. According to a study by Chen, Wang & Qian (2019), urban parks can lower city temperatures by up to 4.6 degrees Celsius, making the neighbourhood more liveable. A different study by Chiesura (2004) discovered that urban parks can catch and filter stormwater runoff, lowering the number of contaminants entering neighbouring waterways.

In conclusion, urban parks offer people and communities a variety of benefits, such as health, economic, social, and environmental real benefits. These

effects highlight the significance of maintaining and growing urban park systems, especially in highly crowded urban areas.

Sustainable Development

Sustainable development in urban cities is a crucial topic of research as cities account for a significant proportion of worldwide environmental pollutants and are also key drivers of economic growth and social development. In this study, we will examine some of the key ideas, debates, and research findings on sustainable development in urban cities.

One of the main challenges in achieving sustainable development in urban cities is balancing economic growth with environmental protection. Many scholars argue that sustainable development in urban cities requires a shift towards low-carbon, resource-efficient, and socially inclusive urbanization (Satterthwaite, 2019). This involves promoting sustainable transportation, energy-efficient buildings, green spaces, and waste management systems. Some scholars argue that economic growth is necessary for development and that environmental concerns should be addressed through technological innovation and market mechanisms (Krugman, 1994). Others argue that economic growth is not necessarily incompatible with environmental protection, but that it must be based on sustainable production and consumption patterns (Hawken, et al., 1999).

Effective governance is also crucial for sustainable urban development. Local governments are vital players in regulating land use, encouraging sustainable infrastructure, and engaging with local communities to promote sustainability (Grimm et al., 2019). However, effective governance also requires collaboration between all strata of governance, business owners, government workers, and local communities. Another important theme in sustainable urban development research is the need to address social inequality and promote social inclusion. Many cities are characterized by stark social inequalities, with marginalized communities facing disproportionate exposure to environmental risks and limited access to basic services (UN-Habitat, 2020a). Sustainable urban

development requires addressing these inequalities through policies and programs that promote social justice, human rights, and equitable access to resources and services.

In terms of empirical research, there are many studies that have examined the impacts of different urban development strategies on sustainability. For example, a study by Owoyemi et al. (2019) examined the impact of urbanization on carbon emissions in Nigeria and found that rapid urbanization was associated with increased carbon emissions. Another study by Wu et al. (2019) examined the impact of green roofs on urban heat islands and found that green roofs could reduce surface temperatures and energy consumption.

In general, sustainable development emphasizes the significance of a holistic approach that strikes the right balance between social, ecological, and economic goals. Sustainable development requires effective governance, collaboration between different stakeholders, and policies and programs that promote social justice and environmental sustainability.

Sustainable Urban Growth

Rapid urbanization and the need for a green environment are two critical issues that pose significant challenges to sustainable urban growth. With the rise in urbanization, there is an increase in the demand for resources such as land, water, and energy. This has led to environmental degradation and negative impacts on the urban ecosystem. The idea of sustainable urban growth seeks to promote an equilibrium between urbanization and environmental conservation. Urbanization is a global phenomenon that is transforming cities and their surrounding areas. The growth of urban areas has resulted in significant changes in land use, with a substantial portion of land being converted from natural to urban areas (Seto et al., 2012). This has resulted in the loss of biodiversity, increased air pollution, and degradation of natural resources. Song and Wu (2018) explored the challenges of rapid urbanization in China and its impact on sustainable urban growth. The authors documented the effects of urbanisation on the environment and highlighted

the importance of developing sustainable urban policies and implementing eco-friendly measures to mitigate the negative impacts of urbanization. The role of parks and the green environment in sustainable urban growth has gained increased attention in recent years. Urbanization and the increasing demand for resources have resulted in environmental degradation and negative impacts on the urban ecosystem. Parks and green spaces are seen as essential components of sustainable urban growth, promoting environmental conservation, public health, and social cohesion. It was also found that, the integration of green infrastructure in urban areas promotes biodiversity, improves air quality, and provides social and economic benefits (Yang & Chen, 2018).

Apart environmental conservation, sustainable urban growth can also promote social cohesion by providing opportunities for social interaction and community engagement. For example, parks and green spaces can serve as venues for community events and recreational activities, bringing people together and fostering a sense of belonging (Hou & Ouyang, 2019). Additionally, sustainable urban growth can also contribute to economic development by creating jobs, increasing property values, and attracting investment. For example, green infrastructure projects can create jobs in the construction and maintenance sectors, while well-designed parks and green spaces can enhance property values and attract businesses and tourism (Harnik, et al., 2017).

To accomplish its objectives, the concept of sustainable urban growth demands a comprehensive and integrated strategy. Environmental conservation, social equity and economic growth are all critical aspects of sustainable urban growth that require attention and investment to achieve a more sustainable and resilient urban future. Parks and the green environment are essential components of this campaign for better cities. Park and green space planning and design that incorporates green structures and community involvement can support quality of life and sustainable urban expansion.

Sustainable Development Goals-SDGs (Goal 11.7)

The Sustainable Development Goals (SDGs) were unanimously endorsed by the UN General Assembly in 2015, demonstrating a shared commitment to deal with global issues and work towards a better future for all. The SDGs grows on the successes of the Millennium Development Goals (MDGs), which were launched in 2000 and targeted poverty reduction, health, education, and gender equality, among other issues. However, the SDGs take a more comprehensive and integrated approach to sustainable growth, encompassing economic, social, and ecological dimensions.

As a global agenda to address urgent issues and advance sustainable development globally, the Sustainable Development Goals (SDGs) were created. At the Rio+20 Conference on Sustainable Development in 2012, leaders saw the need for an all-encompassing framework to address social, economic, and environmental challenges. As a result, these goals were born. The 17 SDGs cover a broad spectrum of interconnected issues, ranging from poverty eradication and hunger to gender equality, climate action, and peace. Each goal is accompanied by specific targets, totalling 169 in all. These targets provide clear objectives to measure progress and guide actions at the global, national, and local levels. The universality of the SDGs, which requires all nations to work toward the goals regardless of their degree of development, is one of the organization's guiding principles. This promotes international cooperation and unity while acknowledging that solving global problems is everyone's duty. The adoption of integrated strategies that take into account the social, economic, and environmental aspects of sustainable development is required if countries are to meet the SDGs by 2030. In order to achieve this, governments, businesses, civic society, and individuals must work together to create revolutionary acts, novel solutions, and solid relationships.

The SDGs have been widely endorsed by governments, civil society organizations, and businesses, and have mobilized significant resources and efforts towards achieving sustainable development. However, achieving the SDGs requires overcoming significant challenges, including insufficient funding, limited data and monitoring capacity, and persistent structural inequalities and power imbalances. Numerous studies have examined the potential of the SDGs to drive sustainable development and promote global cooperation and solidarity (Hsu et al., 2018; Nilsson et al., 2016; Sachs et al., 2017). Others have critiqued the SDGs for being too broad and lacking clear indicators and accountability mechanisms (Martens & Raza, 2018; Scott & Vanderklippe, 2020).

Figure 13

Sustainable Development Goals (SDGs, 2023).



Sustainable Development Goal 11.7

Making cities and human settlements inclusive, secure, robust, and sustainable is the focus of Goal 11 of the SDGs. Goal 11 has a specific target, 11.7, which aims to make safe, inclusive, and accessible green and public places available to everyone by 2030, with a focus on women, children, the elderly, and people with disabilities. The goal recognizes the importance of creating and maintaining green spaces and public areas for improving health and well-being, promoting social cohesion, reducing inequalities, and mitigating the effects of climate change.

Green spaces and public areas provide numerous benefits to individuals and communities, including improved physical and mental health, reduced air pollution, increased social cohesion, and reduced crime rates (Maas et al., 2006; Gascon et al., 2015; World Health Organization, 2017). However, many people, particularly those living in urban areas, lack of safe and non-discriminatory spaces green spaces and public areas. Inadequate green spaces and public areas disproportionately affect vulnerable and side-lined groups, such as girls and women, elderly residents, and persons living with disabilities, who face barriers to accessing these areas due to safety concerns, physical limitations, or discrimination (United Nations, 2019).

Achieving SDG 11.7 requires addressing several challenges, including inadequate funding, lack of political will, and insufficient data and monitoring systems (United Nations, 2019). To overcome these challenges, countries and stakeholders must invest in sustainable urban development and design, improve populace participation and engagement in policymaking processes, and adopt innovative financing and partnership models to mobilize resources and leverage synergies across sectors. Several studies have identified successful strategies and best practices for achieving SDG 11.7. For example, a study by Hoekstra and Wagemaker (2018) identified six key success factors for developing all-inclusive and welcoming public spaces: involving local neighbourhoods in development and design processes, adopting a multi-disciplinary and multi-sectoral approach, designing for safety and security, promoting cultural diversity and inclusivity, ensuring physical accessibility for all, and promoting environmental sustainability.

In essence, the Sustainable Development Goals represent a critical framework for advancing sustainable development and addressing global challenges in an integrated and comprehensive way. The SDGs have mobilized significant resources and efforts towards achieving sustainable development, but they also face significant challenges and critiques. Achieving SDG Goal 11, particularly target 11.7, is critical for creating more liveable, sustainable, and equitable cities. By prioritizing the creation and maintenance of green and public

places that are inclusive and open to all, we can promote public wellbeing, reduce inequalities, and enhance the resilience and sustainability of urban areas.

Figure 14

Sustainable Development Goals, Goal 11.7 (SDGs, 2023).



UN-Habitat Public Space Programme

The United Nations Human Settlements Programme (UN-Habitat) was established in 1978 with the goal of promoting appropriate housing for all people and sustainable urban development. The organization collaborates with governments, local authorities, civil society organizations, and other patrons to provide practical support, backing for housing capacity, and advocacy on a variety of issues related to urbanization. It has played a significant role in influencing global urban development policies and agendas. The activity of UN-Habitat is divided into five thematic areas: housing and slum upgrading; urban regulation, land, and governance; town planning and policy; urban finances; and urban elementary amenities. UN-Habitat supports urbanization as a positive force that can bring about encouraging changes for individuals and societies. Their aim is to work together with collaborators to create inclusive, safe, vibrant, and sustainable

municipalities and communities. By doing so, they strive to reduce discrimination, prejudice, and destitution in urban areas. In more than 90 countries, national and local governments get technical help, policy recommendations, information, and capacity building support from UN-Habitat (UN-Habitat, 2020a).

In close collaboration with national and local governments, UN-Habitat is working to keep track of progress towards Sustainable Development Goal 11 (SDG11) on making municipalities and societies sustainable. This goal is part of a larger plan by the United Nations to create sustainable urban areas.

In response, UN-Habitat established a new division in 2012 called The Global Public Space Programme to assist local governments in creating accessible, inclusive, and safe public spaces for all. As a program, it advocates for the critical role that clean, well-kept public areas play in cities, serving as a catalyst for social justice, economic growth, and environmental reform. Public space, as defined by UN-Habitat, includes streets, sidewalks, bicycle lanes, public spaces such as squares, parks, and waterfronts, as well as gardens and neighbourhood courtyards. Rapid urbanization trends are ever-growing, and unchecked urban expansion far too frequently results in the sacrifice of public places. The initiative assists governments, the commercial enterprise, and civic groups in putting policies and strategies in place to safeguard and revitalize the public sphere for a sustainable development (UN-Habitat, 2020a).

For sustainable public space development and administration, the Global Public Space Programme uses a combined and wholistic policy. Additionally, it advocates in support of national policies and evidence-based plans for a more interconnected system of public spaces. Namely;

- i. City-wide assessments and
- ii. Site-specific assessments.

Over 2.3 million people's lives have been impacted by the program's delivery of 137 public space improvement projects to date (until 2022) in 90 different cities (UN-Habitat, 2021).

City Wide Assessment

Notwithstanding how successful they may be on their own, some benefits of public space cannot be achieved utilizing a site-based strategy for public space or through specific contexts and sites assessments. This calls for a system of public space approach that spreads throughout the entire city, which, when properly integrated, portends advantages that are greater than the sum of individual site approach (UN-Habitat, 2020a). The city's supporting framework is made up of a network of streets and public spaces. In addition to parks, playgrounds, and marketplaces, the term "public spaces" can also include the areas along the sides of buildings and roadsides, such as fronts, passageways, or sidewalks. These spaces, although often overlooked, are also important for public use and can contribute to the overall quality and accessibility of the city. Many of these areas have been reclaimed by the urban poor for their use.

Public spaces are often classified as from the locale neighbourhood levels, provincial urban levels and to countrywide levels or on a city-wide scale based on their catchment areas. Few cities will have adequate distribution of all public space types throughout all city neighbourhoods. The system of public spaces, however, can undergo dramatic transformation. Most frequently, cities need a unified legal system to do this. If a city wants to deal with problems caused by inadvertent development and ensure that different sets have fair access to and satisfaction with public spaces, it's important to consider the diverse activities that take place in these spaces. Public spaces are used for various purposes like sales, commuting, celebrations, daily life in communities, and even as a source of income for certain groups like waste pickers and street vendors. Where public space is inadequate—because of a lack of room, poor design, inconsistent or non-existent upkeep, or constrictive privatization—it results in the segregation of a city, however quietly or

slowly (UN-Habitat 2015). A city-wide strategy is the only way to address such an imbalance.

A city-wide public space approach is a plan that helps create and manage public spaces in a city. It focuses on actions to make sure there are good-quality public areas that meet the needs of the community and can be sustained over time (UN-Habitat, 2020a). By better managing and developing public spaces, it addresses the current actual situation of the city's public spaces, through understanding desires, and sets a community objective. It is frequently converted into recurrent annual action plans for public spaces, which offer more specific information on proposed projects and programs according to the year of execution. It offers the most enduring changes in availability, quality, and accessibility across time.

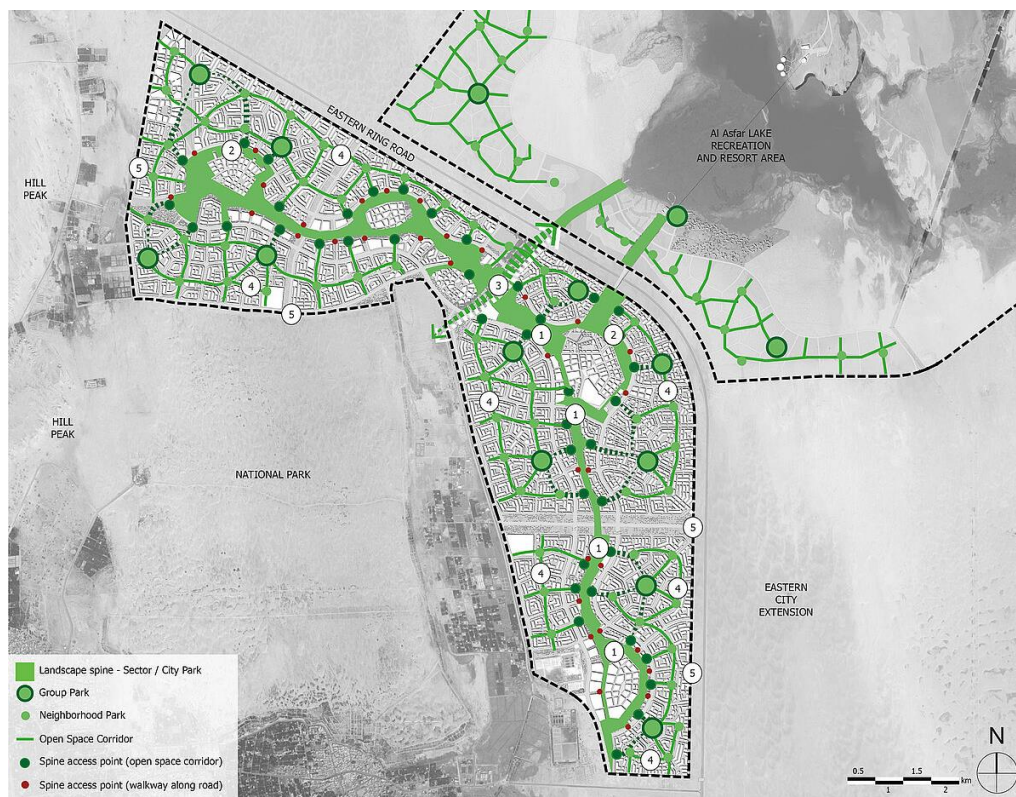
The city-wide approach is designed to (UN-Habitat, 2020a);

- i. Establish an effective path for the development and administration of community spaces in urban centres,
- ii. Create a viable benchmark for the quantity, connectivity, and distribution of public spaces with efficient use of economic and environmental equities,
- iii. Develop principles and guidelines for the planning and management of public places,
- iv. Create a comprehensive action plan with specific steps, considering competing priorities and engaging in partnerships,
- v. Engage and empower residents in their local neighbourhoods, equipping them with administration skills and involving them in decision-making,
- vi. Find collaborations that will result in a variety of positive impacts for public spaces,
- vii. Provide municipal leaders the opportunity to pinpoint locations with potential for improvement.

Overall, assessing public open spaces at the city-wide level of is an important aspect of urban planning and development. It involves evaluating the quantity, quality, and accessibility of public parks, green spaces, and recreational areas available to residents and visitors within a city. This assessment helps identify areas where there is a lack of public open spaces, areas in need of improvement or expansion, and areas that are well-served. The assessment also considers the distribution of public open spaces across different neighbourhoods and demographic groups. The goal is to make sure that everyone has access to safe, high-quality, and enjoyable public open spaces that promote physical activity, social interaction, and overall well-being.

Figure 15

City Wide Level Assessment (AS+P, 2016)



City-Wide Assessment Indicators and Related Standards/Norms.

Analysing the degree to which a strategy or plan is accomplishing its objectives is

made possible by measurable indicators. To ensure effective and successful public space development plans, it is important to set measurable goals. Using indicators to assess the functioning, validity, and effectiveness of these programs allows for monitoring and making necessary adjustments during execution. This approach helps identify any shortcomings and enables revisions to be made to better achieve the desired goals.

A successful city-wide public space strategy is one that focuses on achieving positive outcomes in the long run. Simply following a well-designed process and having comprehensive content is not enough. The key is to ensure that the strategy produces tangible and desirable results for the city and its residents. A city should incorporate relevant standards or norms in its plan once it has decided which public space outcomes it intends to attain. This will allow the city to measure its performance and, ultimately, the strategy's influence. These standards are numerous and linked (Mehta, 2014). Every city, for instance, needs to have enough community space to operate well. Economic and social segregation can be lessened by the equal distribution of high-quality public spaces. Access via public transportation, networks for walking and bicycling, and sufficient parking are also crucial. Public spaces within a city-wide network should serve specific purposes, be inclusive, and proportionate to human needs. They should encourage diverse uses, vibrant environments, and equal access for all residents. They should be versatile and flexible to accommodate a variety of uses, such as recreational activities, cultural events, or social gatherings. Regular maintenance and upkeep are essential to ensure that these spaces remain inviting and functional for residents (Mehta, 2014). Accordingly, the indicators for City-Wide assessment as grouped by the UN-Habitat Public Space Programme are;

Quantity; Distribution; Connectivity; Diversity; Accessibility and Quality.

Quantity: Various sources in the field of urbanism have recommended a minimum amount of public space that cities should have. In a study conducted by UN-Habitat in 2013, it was found that successful cities around the world allocate

approximately 30% of their land surface to roads, walkways, boulevards, and sidewalks. Building upon this, UN-Habitat advises cities to aim for at least half of the land to be dedicated to open public areas such as parks, sports facilities, playgrounds, and marketplaces. This recommendation emphasizes the importance of providing ample space for public enjoyment and community activities in urban environments (UN-Habitat, 2013). Consequently, the constituted recommended norm and standard for the Quantity Indicator;

Norm: “45% of total urban area is public space, composed of 30% for streets and sidewalks/pavements and 15% for public open spaces (whether green or not)” (UN-Habitat, 2020a, p. 77).

Distribution: Distribution of public open spaces is essential to ensure fair access, especially when the quantity of spaces alone may not be sufficient. It's important to consider how far and how long individuals need to travel to reach these spaces. Givoni (1991) highlights key factors for effective planning of urban green areas, including the total amount of available open space, its division into smaller parcels, distribution throughout the city including both central and peripheral areas, the size of individual spaces, and their proximity to residential areas.

When estimating distances to the nearest public space, factors like water courses, hills, and railways should be taken into account, as this norm focuses on the distance to the closest space for pedestrians. It's important to recognize that people have natural limitations on the distance and time they are willing to walk to access neighbourhood-scale public spaces. While there is a recommended minimum standard for city-wide public space policy, it should be adjusted based on individual preferences, the specific type of space (e.g., playground, park, or nature reserve), and how often people visit these spaces.

Norm: “Across the city, residents live on average 400m from the nearest public open space” (UN-Habitat, 2020a, p. 79).

Connectivity: The connectivity between different locations within a city has a significant influence on people's travel behaviour. A comprehensive study conducted by Ewing and Cervero in 2010 revealed that among various factors considered, street intersection density in a city had the strongest correlation with residents' choice to walk as a mode of transportation. The benefits of higher intersection density extend beyond walking. Notably, the advantages of increased street intersection density extend to environmental aspects as well. Studies by Cervero and Murakami in 2009 and Frank in 2005 indicate a strong correlation between higher intersection density and several environmental benefits. Firstly, elevated street intersection density contributes to a reduction in greenhouse gas emissions, thereby mitigating the impact of transportation on climate change. Secondly, it positively affects public health by encouraging physical activity and reducing sedentary lifestyles associated with excessive car use. Furthermore, sophisticated intersection density is associated with lower per head air pollution, benefiting air quality and overall well-being.

Norm: *“The average city-wide density of public street intersections is 100 per square kilometre”* (UN-Habitat, 2020a, p. 81).

Diversity: Every resident has their own unique interests and preferences, which means that both individuals and the public spaces they utilize will vary in terms of usage and activities. It is impossible for a single public park to cater to the diverse desires and activities of all residents. This is where a city-wide public space strategy becomes advantageous, as it ensures that there are suitable places for everyone's preferences and activities when considering all the public spaces across the city. For example, a study conducted by Schipperijn and colleagues in 2010 revealed that urban dwellers are more inclined to use nearby open spaces if they have a dog or a child under the age of six. However, those who do not own a dog or have a young child may be less motivated to use the nearest public open space if it is predominantly frequented by dogs and kids. In fact, different people may have opposing reactions to the same landscape element. Another study

indicated that while some users considered water features and birdlife to be pleasant or peaceful, parents frequently saw them as dangers (Francis J et al 2012).

Norm: “*City has adopted and is implementing a plan with different public spaces that cater, in aggregate, to the following: (1) both active and passive engagement, (2) activities for both children and the elderly and (3) commercial market*” (UN-Habitat, 2020a, p. 83).

Accessibility: An outdoor area that is accessible to a sizable number of city dwellers for their freely selected and spontaneous movement or visual investigation is an open space (Mehta, 2014). UN-Habitat and the Centre for the Future of Places focus on addressing the physical and financial barriers created by neoliberalism in public spaces. However, there is a lack of consensus among different disciplines on the definition of "accessibility" in the context of public space. They advocate for free and inclusive access to public spaces, without entrance fees or segregation. While implementing this ideal accessibility could be managed on a site-by-site basis in theory, practical implementation may require city-wide policies and enforcement, especially in certain areas like high-income neighbourhoods, privately owned spaces, or commercial markets. (UN-Habitat, 2020a).

Norm: “*City has an enforced policy that no public open or green spaces have physical (such as walls, fences, lockable gates or checkpoints) or financial (entrance fees) barriers to pedestrian access*” (UN-Habitat, 2020a, p. 85).

Quality: Quality is the hardest of the six norm categories to define. Some of the earlier standards can be considered to be components of quality public space to some extent. Nonetheless, UN-Habitat and its sister agencies on public spaces enthusiastically believed that a number of other aspects of public space, such as maintenance strategies and development principles, were worth enshrining as norms. Literature have demonstrated that the impression of safety is correlated with the maintenance and condition of public spaces (Day & Wager, 2010).

Furthermore, inadequate or malfunctioning lighting creates obstacles to accessing public spaces. Above all, unmaintained, dirty surfaces served as deterrents to using public spaces for recreational activities as they raised the danger of injury (UN-Habitat, 2018; UN-Habitat, 2020a). As shown in the accessibility indicator, maintaining public spaces can theoretically be done on a site-by-site basis, but doing so is likely to call for a city-wide strategy if it is to be applied to all areas of the city rather than just those with socioeconomic advantages.

Norm: “*City has a budgeted policy of regular cleaning and proactive maintenance of all public spaces (streets and open spaces)*”. Additionally, “*City has an enforced design guideline for open public spaces’ visual and physical connection and openness to adjacent streets and/or spaces that facilitate move-to and movement-through them*” (UN-Habitat, 2020a, p. 87).

Site Specific Assessment

The Site-Specific assessment as the name implies is concerned with assessing the conditions and quality of individual public spaces and their immediate local environment (usually within a 400metres radius) in isolation from the entire city public space networks. This assessment is confined to neighbourhood’s public spaces quality and accessibility with regards to residents needs and desires. The main objective of the assessment is (UN-Habitat, 2020b);

- i. Providing a forum for discussion between the local government, specialists, and the community.
- ii. Finding gaps and evaluating the quality of public spaces.
- iii. Contextualizing urban design and planning solutions.

Figure 16

Site Specific Level Assessment (Maria, 2022)



Site Specific Assessment Indicators: There are twenty (20) indicators that are in five main divisions. The assessment gives you the option to choose, add, and prioritize specific indications based on the local situation. But the five main and constant groups are;

Use and User; Accessibility; Amenities and Furniture; Comfort and Safety; Green Environment.

Use and User: The dimension concentrates on who and how is using the space. A high-quality public space is one that is made to be used by everybody, especially the most vulnerable of the population, and where individuals of all backgrounds can spend quality time. With this dimension, one can evaluate how inclusive the space is by looking at the different types of people and activities occurring (UN-Habitat, 2020b). The indicators in this division are;

- i. Users using the public space in both quantity and variety.
- ii. The number and variety of activities observed in public space throughout time and space.

Accessibility: This dimension focuses on site access in terms of perception and physically. In particular for the elderly and those with special needs, a public space should be easily accessible by foot, bicycle, or public transportation. A public space should be accessible to everyone without a fee; therefore, this dimension also considers usage limits (operation use) and bylaws. The perception of accessibility is also evaluated, including whether visitors to the public space feel welcome and comfortable (UN-Habitat, 2020b). The indicators in this division are;

Accessibility and the availability of qualitative and inclusive facilities for:

- i. private vehicles.
- ii. Pedestrians
- iii. Bikes and
- iv. Public Transport

Amenities and Furniture: The elements that enhance the appeal of public spaces are amenities and furniture. This can include, but is not limited to, areas where one can rest, eat, and drink as well as amenities like lights, trash cans, and toilets, among other things. This dimension examines their accessibility, distribution, and state of quality. Moreover, amenities and furnishings should be inclusive and meet the demands of the many groups in the neighbourhood (UN-Habitat, 2020b). The indicators in this division are;

Presence and Quality of the following:

- i. Lighting
- ii. Recreational amenities and structures
- iii. Seating
- iv. Waste bins

- v. Bike racks
- vi. Signage and emergency items
- vii. Water and toilets facilities

Comfort and Safety: This measure examines how individuals see and feel, which can have a significant impact on their wellbeing and the amount of time they spend in public space. Well-kept environments are frequently seen as welcoming and secure, but vandalized and neglected spaces may have the opposite impact. Comfort can be impacted by odour, sound, sight, psychological and physical state, and the general character of a space. While some people may feel safe using a public space, others may feel endangered by low visibility, a concentration of particular groups, lack of activities, or past incidents (UN-Habitat, 2020b). The indicators in this division are;

- i. Perceptions of the public space's security and safety.
- ii. Quality of sensorial experience.
- iii. Overall ease of use of the public space, as reflected in maintenance, design, and environmental factors.
- iv. Presence of a public space identity, influenced by cultural background and user satisfaction.

Green Environment: This dimension addresses environmental factors that can enhance residents' health and wellbeing. Green spaces, which offer a balance between development and nature, are increasingly in demand in crowded cities. The quality of the air, the reduction of noise pollution, and the reduction of heat and temperature can all be greatly impacted by well-designed public spaces with enough green coverage and water management. Trees, grass, and other types of green vegetation help adaptation and mitigation of the consequences of climate change by providing habitat for wildlife, preventing soil erosion, and providing other benefits. (UN-Habitat, 2020b). The indicators in this division are;

- i. Presence and quality of biodiversity in the public space.

- ii. Environmental and community resilience.
- iii. Presence of energy-saving elements in the public space.

Theoretical Framework

Public open spaces are essential components of sustainable urban development. They provide opportunities for recreation, social interaction, and environmental benefits. The goal of the research is to explore the quality of public open spaces for sustainable growth. Foregoing literature has shown that public open spaces as drivers of sustainable development is only getting attention in recent years. Thus, requiring more studies to fill in existing gaps, especially in developing nations like Nigeria. The theoretical framework for this research is structured around three main concepts: sustainable urban growth, public open spaces, and quality evaluation. This section will provide a literature review to support these concepts and explain their relationship to each other.

Sustainable Urban Growth

Sustainable urban growth is a complex concept that covers the social, economic, and environmental dimensions of urban life. Sustainable development has been defined as meeting present needs without jeopardizing the ability of coming generations to meet their own needs. (Brundtland, 1987). By focusing on sustainable urban development, we aim to create cities that are environmentally sociable, socially equitable, economically feasible, and capable of meeting the evolving needs and aspirations of people for generations to come (Chiu, 2016). According to Sassen (2018), sustainable urban growth requires an all-inclusive approach that reflects the interrelatedness of various social, economic, and environmental factors. For example, the provision of public amenities, such as parks and green spaces, that provide social and environmental benefits to urban residents can contribute to the overall liveability and sustainability of urban areas.

Public Open Spaces

Public open spaces are essential components of sustainable urban development. They provide a range of benefits, including opportunities for recreation, social interaction, and environmental benefits (Alvarez et al., 2018). Research has shown that access to public open spaces can have a positive impact on physical and mental health (Kabisch et al., 2015) and can contribute to social cohesion and community engagement (Hough, 2004). The delivery of open spaces is also linked to environmental sustainability, as they can offer a variety of ecological values, for instance air and water quality improvement, and biodiversity conservation (Escobedo et al., 2018). Moreover, public open spaces can help to mitigate the negative impacts of urbanization, such as urban heat islands and air pollution (Gómez-Baggethun et al., 2013).

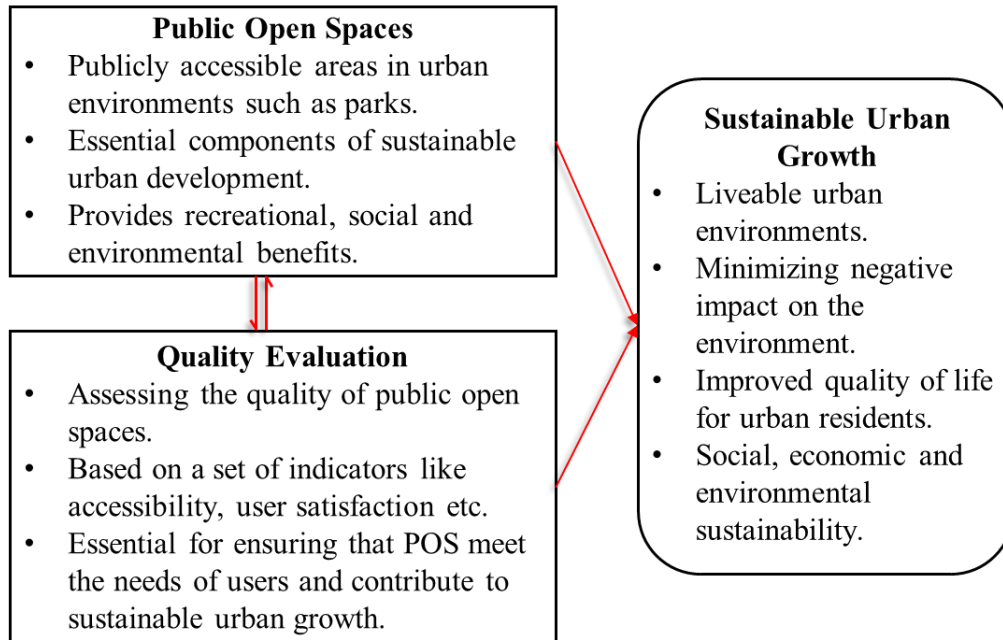
Quality Evaluation

Quality evaluation is essential for ensuring that public open spaces are user oriented and contribute to sustainable urban development. According to Gehl and Svarre (2013), the quality of public spaces can be evaluated based on four dimensions: accessibility and connections, comfort and attraction, uses and activities, and sociability. These dimensions can be further broken down into specific evaluation criteria, such as safety, cleanliness, and inclusiveness. Research has shown that quality evaluation is an effective tool for improving the pattern and administration of public open spaces (Peng et al., 2021). Quality evaluation can provide insights into user needs and preferences, which can inform the design, administration and organization of public open spaces to better serve urban residents (Alvarez et al., 2018).

Relationship Between the Concepts

Figure 17

Relationship Between the Concepts



The three concepts - sustainable urban growth, public open spaces, and quality evaluation - are closely interrelated. Sustainable urban growth requires the provision of public amenities, including public open spaces, that provide social and environmental benefits to urban residents. Public open spaces, in turn, are essential components of sustainable urban growth, providing a range of benefits to urban residents and contributing to environmental sustainability. Finally, quality evaluation is essential for ensuring that public open spaces are designed for users and contribute to sustainable urban growth.

The theoretical framework for this research emphasizes the significance of public open spaces in sustainable development and highlights the need for quality evaluation to ensure that public open spaces are designed for users and contribute to sustainable urban development. The quality evaluation framework for public open spaces can be based on a range of criteria, such as physical design,

accessibility, safety, social and environmental impacts, and user satisfaction. The literature review supports the importance of these concepts and provides a foundation for the research.

Related Research

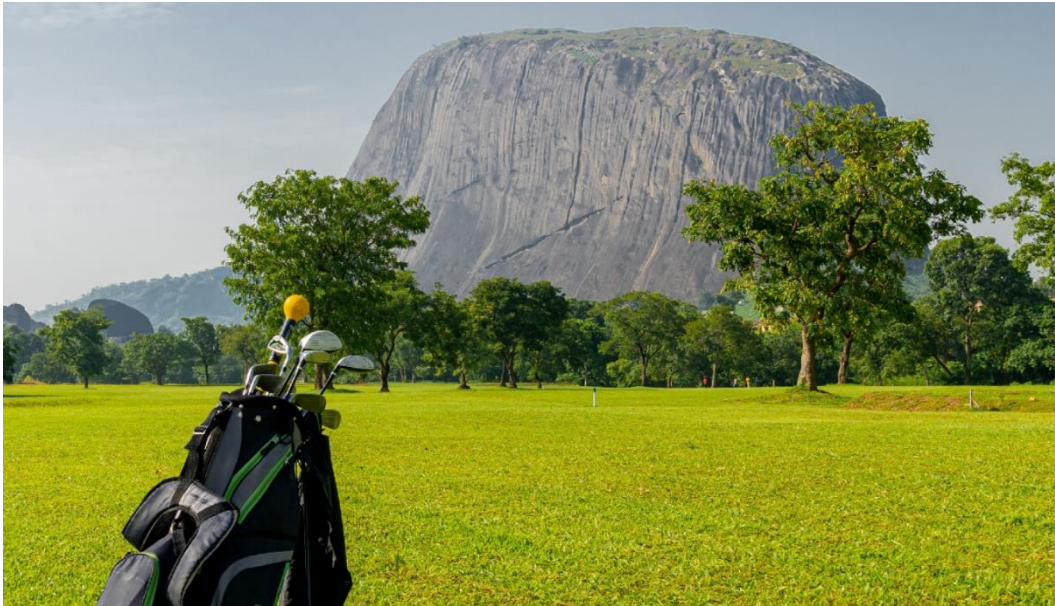
Public Space Assessment in Suleja, Nigeria (UN-Habitat, 2021)

The city of Suleja is grappling with a range of challenges that have had a significant impact on its urban landscape. These challenges include inadequate provision of basic services, an underdeveloped transport system, limited availability of urban data, and a lack of effective policies and urban initiatives. In order to tackle these issues head-on and foster more sustainable communities, the Suleja Emirate has undertaken various city development programs. One of the key initiatives focuses on the creation and enhancement of public spaces, recognizing their crucial role in improving the overall living condition in urban centres. To effectively improve the public space network, Suleja has partnered with the Global Public Space Program. As part of this collaboration, comprehensive assessments were conducted at both the city and neighbourhood levels. The primary objective was to gather contextualized data on the accessibility and quality of public open spaces, enabling the development of tailored plans and recommendations. The assessment process involved a dedicated team of evaluators who meticulously visited the sites multiple times a day for a span of seven days. This intensive approach aimed to gain a comprehensive understanding of the evaluated locations and their unique characteristics. By observing the sites closely and interacting with users, the evaluators were able to gather valuable data regarding the condition of amenities, changes in activity patterns, shifts in user behaviour, and other pertinent factors. The collected data serves as a valuable resource, providing crucial insights into the current state of public spaces in Suleja. It offers a deeper understanding of the strengths and weaknesses of these areas, enabling informed decision-making for future improvements. With this comprehensive assessment, Suleja is better equipped to address the challenges it faces and implement effective strategies to

enhance its public spaces, ultimately creating more vibrant and inclusive urban environments for its residents.

Figure 18

One of the Sites in Suleja, Zuma Rock Resort and Golf (Getty Images, 2018c)



Findings. The research made key findings after data collection which include:

- i. Park accesses for girls and women is notably very low compared to that of boys and men.
- ii. The park lacks attraction due to poor maintenance and amenities.
- iii. Inadequate and poor furniture for convenient usage by the local community.

Recommendations. The key recommendations of this research aimed at improving the public spaces in Suleja are:

- i. Special consideration for disadvantage groups (i.e., women, girls and persons with disability) in public open space designs.

- ii. Utilising public spaces to create job opportunities for youths.
- iii. Improving urban amenities delivery like seats, lights and waste bins towards bettering the comfort of users.
- iv. Utilising exiting urban landscape to create attraction and recreational activities.

Public Open Space for Sustainable Urban Development in Nepal (Rija, 2017)

The study focuses on how the urban public space play role in making the city convenient, liveable and safe by assessing the public spaces in Kathmandu city in Nepal. The study explored and compared the public spaces in traditional and new settlements, documenting use and users, accessibility, distribution, Neighbourhood layout, waste management, changes, Environmental and climatic conditions among other criteria. The study employed City-wide assessment approach in Kathmandu city, Nepal.

Figure 19

Kathmandu City, Nepal (Rija, 2017)



1. Palace Square
2. Market Square
3. Residential neighbourhood square
4. Private Residential Square
5. Open space at town periphery

Findings. Some of the key findings of the research are presented below:

- i. The availability of parks and other similar spaces in the studied neighbourhood is below par and international standards. While, distribution was found to be good.
- ii. The study found significant economic, social and environmental barriers to public open space access in the city.
- iii. Residents were dissatisfied and discouraged by the poor maintenance culture of the open spaces in the study area.

Recommendations. The report presented recommendations for sustainable urban growth following the data analysis;

- i. Allocating lands for public open spaces in every new settlement.
- ii. Building, equipping and furnishing existing and new public open spaces to serve the large population.
- iii. Better inclusiveness: Open space should be designed in such a way it can be well utilised by the children and elderly, women and every individual in the society.
- iv. Sense of place and community: Public open space should represent the values and identity of the immediate local populace.
- v. Improve maintenance: Traditionally the management of the spaces was done by the community itself. Local government should instil maintenance culture through fulfilling user needs in public spaces.

CHAPTER III

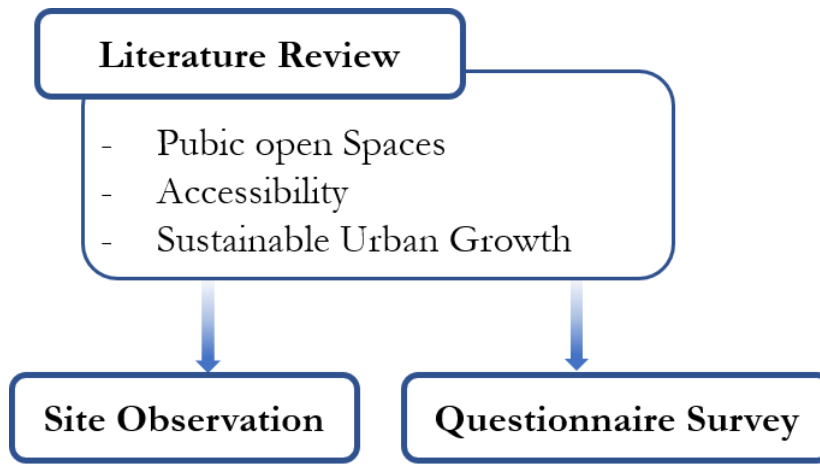
Methodology

This chapter's goal is to introduce the research plan and empirical methodology used to assess the quality of Millennium Park in Abuja, Nigeria. The research methodology aims to examine the methods used for the data collection, presentation, and analysis. In order to adhere to the study objectives, some activities of the research work will be carried out in a specific manner that corresponds to the methodology used. They comprise questionnaire survey, visual survey, and site observation. The methodology outlines the techniques used to carry out this study and its outcomes. The study is descriptive and quantitative in nature, employing in-depth site survey and assessment of the case study site as well as utilising questionnaire to collect subjective data from end-users. The mixed approach is aimed solely at exploring the quality of public open spaces for sustainable urban development.

Research Design

The goal of research design is to make sure that the data collected allows for the most straightforward answers to the initial research questions. The research employed both qualitative and quantitative data approach. Through, fieldwork with the researcher as the primary instrument for data collection and analysis; and questionnaires to collect subjective responses from end-users of the site. Additionally, the case study research methodology was used for this study. The focus on human environments and experiences within a variety of theoretical frameworks is one reason why this type of investigation was deliberately chosen. The case study approach enabled the research to record and collect the everyday reality of the residents of the study area. The assessment was carried out through observations, visual and questionnaire surveys, to understand the quality of Millennium Park in Abuja, towards sustainable development. The questionnaire entails questions on demography, public open spaces, Accessibility, park attributes, and potentials for sustainability.

Figure 20

Research Design**Population and Sample**

In order to ensure that the research's findings can be applied to a larger context outside of the sample and that they can be generalized to the complete group being examined, it is crucial to define the population precisely. Population in this context describes the entire set of people or objects that have a characteristic in common that the research is interested in. Thus, the population of this study includes residents and all Millennium Park users in Abuja, Nigeria.

In creating the appropriate selection methodology that drives to generate an ideal result in this research, many factors were taken into consideration. Starting with the distribution of questionnaires utilizing random (i.e., any park user and resident of Abuja can participate in the study) and representative (i.e., data will be collected across all days of the week to represent weekly users) sampling methods throughout the study area. This method is the most effective for achieving the study's target objective and purposes. The study successfully collected a substantial number of 211 responses through the comprehensive questionnaire survey.

Data Collection Tools

The tools that were used for data collection and documentation for this study's purposes are; Field observation and Questionnaire Survey.

Site observation entails examining the case's physical characteristics and documenting them with the aid of photographs and diagrams. Also, consider how activities are carried out and how it impacts the users. This will make it possible to validate some questionnaire responses.

The questionnaire survey is aimed at collecting personalised experience of respondents in regards to usage of the study area. The questionnaire is divided in to five sections namely;

- i. Demography information (i.e., Gender, Age, etc.),
- ii. Public open spaces (i.e., preferred POS to respondents, neighbourhood POSs, etc.),
- iii. Accessibility (i.e., Distance to the case study, mode of Transport, etc.),
- iv. Park attributes (Quality rating of security, attraction, furniture, etc.)
and
- v. Sustainability potentials (i.e., how well the study area contributes to sustainable urban growth).

Data Collection Procedures

Visits to the case study site and visual analyses of its components as they pertain to the quality evaluation were part of the procedures for collecting data. Furthermore, distributing physical questionnaires to park users (i.e., residents, workers and visitors/tourist) found on site across every day of the week; in addition to online questionnaire forms shared amongst residents of the city. These procedures ensured that robust data were collected during the cause of the study. The study was able to receive 211 responses from the questionnaire survey.

Data Analysis Procedures

Based on a descriptive account of the features that were observed, the data collected from the visual survey and observation were analysed in relation to established indicators and users' responses. While quantitative data collected from the questionnaire survey were analysed on numerical terms (percentages, mean, standard deviation, etc.) with park attributes responses represented on the Likert scale. The statistical analysis was conducted using the Statistical Package for Social Sciences (SPSS) statistics computer program.

The analysis is presented in diagrams, figures, photographs, maps, tables and charts. Detailed explanations are made available in addition to the photographs, figures and tables.

Reliability and Validity

The conduct and result of this research passed through careful reviews and scrutiny in order to avoid errors and ensure that the research objectives are achieved. The reliability and validity of the results were confirmed through calculating the correlation coefficients of the set of questions in the questionnaire survey, by utilizing analytical computation techniques, which involve the use of mathematical models and algorithms, it is possible to process and analyse data in a systematic and rigorous manner. This approach allows for detailed examination of various factors, patterns, and relationships within the data, leading to a deeper understanding of the subject under investigation. Measuring the consistency of replies across various test or questionnaire items falls under the category of internal consistency reliability (Koo & Li, 2016). While, examining whether the elements or questions on a test or questionnaire are relevant to the construct being measured is known as content validity (DeVellis, 2017). For content validity evaluations, peer reviews groups and expert reviews were engaged.

CHAPTER IV

Findings and Discussion

This chapter aims to centre on the data collected throughout the course of the study, provide a clear analysis of the data, and also presents the findings of the analysis with their explanations.

Case Study: Abuja, Nigeria

Abuja, Nigeria's capital city, is situated in the Federal Capital Territory (FCT), which is in the centre of the nation. Abuja's geography, which is 1,100 meters above sea level on average, is distinguished by its rolling hills, valleys, and plateaus. The city is characterized by a distinctive fusion of contemporary architecture and traditional Nigerian culture, with its broad boulevards and contemporary buildings being matched by the local markets and crafts that can be found on the city's streets.

Typically tropical, Abuja's climate and to some extent Nigeria as whole has two different seasons, one rainy and the other not. The city experiences significant amounts of rain in the rainy period, whereas the non-rainy period is marked by warm, dry weather with low humidity. In Abuja, year-round temperatures typically vary from 25 to 35 degrees Celsius.

Public parks in Abuja are one of the city's main draws since they offer a peaceful respite from the bustle of the city. One of Abuja's biggest parks, Millennium Park is situated in the Maitama neighbourhood and has lovely flowers, fountains, and strolling routes. The Abuja National Children's Park is another popular park; it's on the outskirts of the city and is home to a wide variety of animals, like baboons, antelopes, and hyenas. The city also has a number of smaller parks and green spaces, like the Jabi Lake Park, that are popular amongst both locals and visitors. Abuja, the Federal Capital Territory, is a unique and multicultural metropolis that presents tourists with a fascinating fusion of

contemporary and traditional Nigerian culture, breath-taking landscape, and a wealth of public open spaces for exploration.

Figure 21

Map of The FCT (Abuja) Highlighting Public Parks, gardens & green spaces (Cadmapper, 2023)

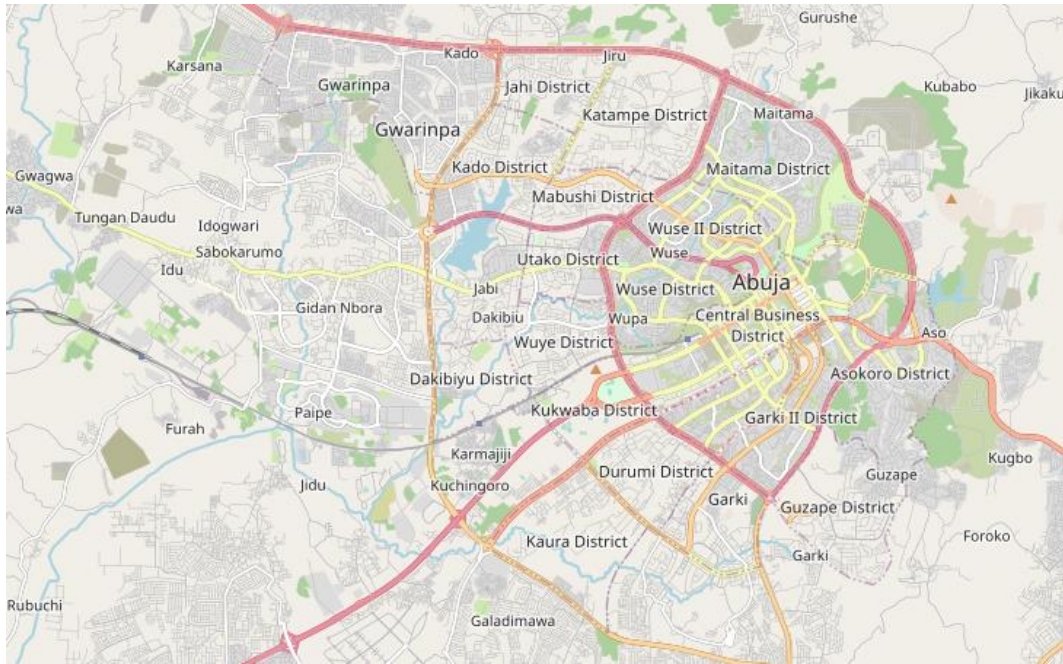
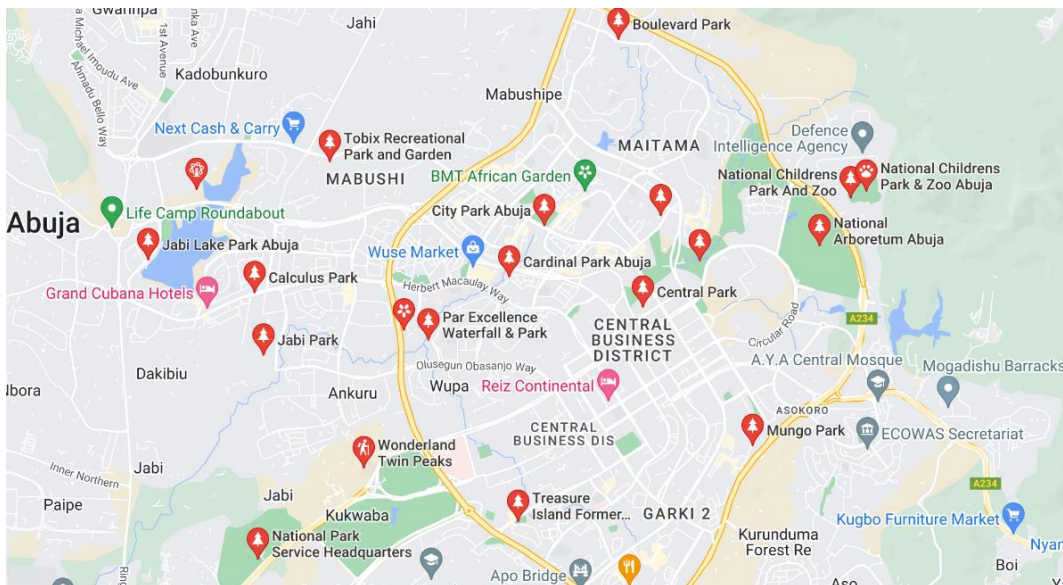


Figure 22

Map of Abuja Highlighting Major/National Parks (Cadmapper, 2023)



Millennium Park Abuja

Millennium Park is one of the most prominent public open spaces in Abuja, Nigeria. The park, which is situated in the city's Maitama neighbourhood, was developed to mark the millennium and was officially opened on December 4, 2003, by Her Majesty Queen Elizabeth II. The park is one of the biggest in Abuja and has a total area of roughly 32 hectares. President Olusegun Obasanjo's administration initiated the park's development in an effort to create a public space that would encourage environmental preservation and offer a peaceful atmosphere for Abuja locals and tourists.

Manfredi Nicoletti, an Italian architect, designed the park with the concept that it would serve as the city's "green lung." The park was built over the course of two years, and it was finished in time for Nigeria's 43rd anniversary of independence. The huge central lake in the Millennium Park, which is home to numerous fish and aquatic plant species, is one of the park's most striking features. Well-kept lawns that are popular locations for picnics and leisure activities surround the lake. The park is a popular spot for exercise enthusiasts because it has many walking paths, jogging tracks, and cycling paths. The visitor is welcomed into the park by a rectilinear route that is entirely covered with Roman white travertine. The pathway is laid out using a trident geometry, which is divided by sizable polygonal lakes. The park's numerous gardens, which highlight the vast diversity of Nigeria's flora, are another noteworthy aspect. A large variety and range of plants, including rare species, are present in the park's botanical gardens. Among other things, visitors can find a fruit garden, a palm garden, and a medicinal garden. Furthermore, the Millennium Park has a number of sculptures and pieces of art that enhance its aesthetic appeal. The lower portion of the park is also set aside and designated for golf. Park maintenance is contracted to Salini Nigeria Limited. Park entrance is free of charge and for all persons but it is only open from the period of 8am to 6.30pm every day. All animals/pets are not allowed in the premises except for Dogs on leashes. A lot of public and private events take place at Millennium Park, sales and other small businesses are also

permitted. Nevertheless, a request for approval has to be made and approved by the park management for any event or sales on the premises.

Nigeria's dedication to environmental preservation and sustainable development is demonstrated by the development of Millennium Park. For Abuja residents and tourists, the park's expansive green fields, gardens, and water features offer a peaceful and relaxing setting. The Millennium Park is a true gem of Abuja's public spaces, offering a wide variety of recreational opportunities and cultural attractions.

Figure 23

Map Highlighting Millennium Park in Abuja (Cadmapper, 2023)



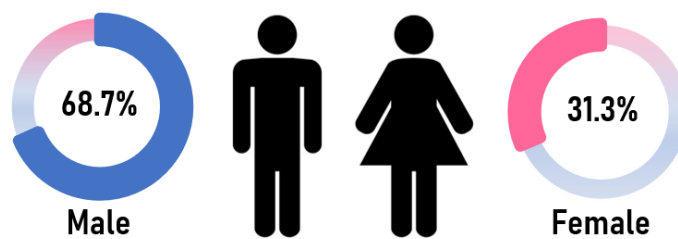
Demography

The demography of this study represents the character of the population that participated and contributed to the research findings. It further indicates the nature of representation of the different human groups and social class (i.e., gender, age, occupation etc.) in Millennium Park Abuja, Nigeria. The demography aided the study's understanding of the connections between various demographic parameters and the research question.

Gender

Figure 24

Gender of the population



The gender formation for the respondents that participated in study indicates the heavy disproportion between the two genders. Male users, 68.7% (145), are almost three times the number of female respondents with 31.3% (66). The figures are suggestive of the lopsided access opportunities to Millennium Park, and consequently other public open spaces in Abuja. The inclusivity of any space includes equal access opportunities for all residents, be it gender, age or social status subject-based. Additionally, the gender distinction suggests that the men and boys are more willing to be part of empirical studies on public open spaces in the study locale.

Age

The age distribution of the respondents as shown in figure 25 below, reveals that most park users are youths with very little representation of the elderly population. Those aged between 18-30 years make up more than fifty percent of

the population with 122 persons (57.8%). The very elderly of the environment only makes up of 19 persons that is only 9% of the population, with those aged 51-60 years having most of it with 16 persons while those aged 60+ years having 3 persons. Like the gender, elderly inclusion in accessing the park is skewed and disproportionate. It also reveals the reluctance of the elderly to be part of the public sphere. The elderly's access to Millennium Park is hugely influenced by distance, time and mode of transportation to the park which is indicated in the accessibility heading of this chapter.

Figure 25

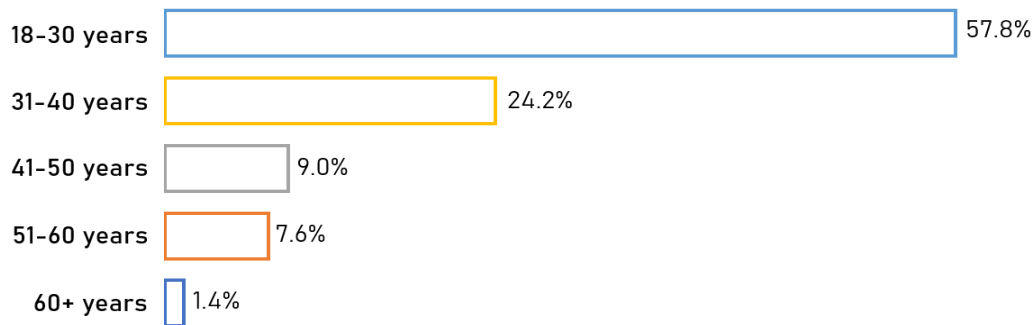
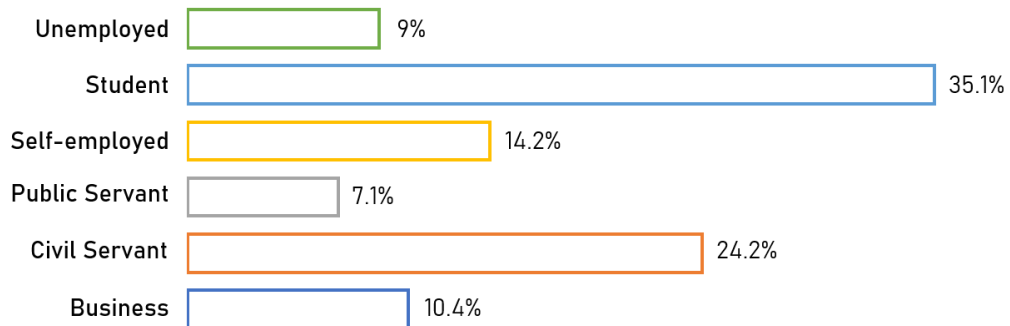
Age Distribution of Population**Age Distribution***Occupation*

Figure 26

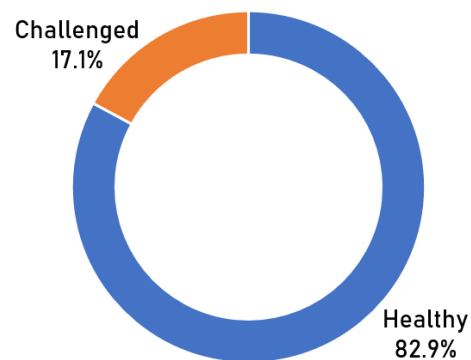
Occupational Distribution of Respondents**Occupation Distribution**

The occupational status of respondents is important towards indicating the ratio of residents with secured employment and thus the social standing to some extent. This is even more important owing to the fact that Abuja is the seat of power and administration of the whole nation. Home to the highest political office holders and civil servants of the federation. Being the nation's capital, it also provides business owners and free-lancers a conducive environment to thrive. The result in figure 26 above shows that 55.9% of participants, made up of self-employed, business owners, civil and public servants, have a secured means of livelihood. While a good percentage (44.1%) are either students at various levels of education or are unemployed entirely.

Health Status

Figure 27

Ratio of the Healthy and the Challenged



Ratio of the Healthy and the challenged

The questionnaire also asked the question ‘do you have any health challenge or disability?’ in order to ascertain the inclusivity of the challenges in the public open space. Also, to understand their willingness to participate in the outdoor environment. Moreover, it was cited in the literature review of this study that participation in the open spaces has solid advantages to the health challenged and elderly (Kaczynski et al., 2014). It was also indicated that accessibility

conditions influenced such people's participation in public open spaces like parks. Hence, this data in association to other data from the accessibility and quality of the park provides crucial evidences. The result reveals that majority of the park users are free of any health or disability challenges with 175 respondents (82.9%). Though few in ratio to the healthy, the 36 responses (17.1%) of those with ailments and disability cannot be ignored.

Age & Health problem/disability Crosstabulation

The study further looked at the possibility of association between old age and health challenges/disability, as commonly portrayed in literature, through cross tabulation of the Age findings and Health status findings. The analysis of this association, as displayed in Table 1 below, shows no conclusive evidence of aligning health challenges to the elderly alone. The bulk of those with challenges to their health are from the middle-aged users with more than fifty percent. Although, the elderly has more account of health issues than the youth of the respondents. This analysis provides evidence that not only the old have impeding health challenges, but that health is a phenomenon with no confinements to social, economic and biological differences.

Table 1

Age & do you have any health problem/disability Crosstabulation

		Do you have any health problem/disability			
		No	Yes	Percent of 'Yes'	Total
Age	18-30 years	116	6	16.7%	122
	31-40 years	38	13	36.1%	51
	41-50 years	11	8	22.2%	19
	51-60 years	9	7	19.4%	16
	Above 60 years	1	2	5.5%	3
Total		175	36	100%	211

Accessibility

The accessibility segments of the findings showcase and discusses the conditions of access to Millennium Park in Abuja by residents and tourists alike. It also inquired into individual neighbourhood public open space condition of residents, finding how accessible are the spaces and what is the perception of quality from its users. The segment includes distance, time of travel, mode of travel, frequency of use, time of use, type of use of Millennium Park amongst other crucial indicators.

Neighbourhood POS

The first step made was to understand the accessibility conditions of respondents to any type of Public Open Space in order to shed light on the distribution of open spaces in Abuja, Nigeria. In figure 21, which highlights open space found in the FCT, green and open spaces are shown to be randomly and regularly dispersed in the city. Also, majority (64.5%) of respondents say they have access to a neighbourhood public open space. And evaluated on a five-grade scale, they rated the quality of their individual neighbourhood open spaces to be fair (41.4%). To further ascertain the quality rating, its dispersion and reliability, a mean quality was computed alongside standard deviation, which produce scores of 3.09 and 1.136 respectively. The mean supports the 'fair' rating by majority, while the bulk of the rating are only 1 standard deviation away from the mean. This analysis affirms the findings under this inquiry.

Figure 28

Response to 'do you have access to a neighbourhood public open space?'



Table 2

Perception of Quality with the Public Open Space in your Neighbourhood

	Frequency	Percent	Mean	Standard Deviation
(1) Very Poor	19	11.7	-	-
(2) Poor	21	13.0	-	-
(3) Fair	67	41.4	-	-
(4) Good	36	22.2	-	-
(5) Very Good	19	11.7	-	-
Total	162	100.0	3.09	1.136

In addition to understanding availability of public open spaces at the neighbourhood level of the city, it is incomplete without exploring the type of public open spaces residents access the most and by implication most needed. Furthermore, what are the factors that influence users' patronage of these spaces. In this stride, the study found that parks are the most popular public destination among residents with 82.9% responding to liking parks. Parks are liked by most because it stands as one of the most inclusive public open spaces that engage in a variety of activities that suits different user groups. Sports Facilities, Public Gardens and Children's Playground (45.2, 39 and 31.4 percents respectively) are also public open spaces of interest in the city.

For the factors that influence users access to the spaces in Table 4, convenience is the most critical factor with 62.2%. Users want to be able to have access clean and waterborne toilets in public open space. It was also cited in literature to affect the length of stay of users in public spaces. Quality of the space, services in the space and proximity (51.2, 49.8 and 45 percents respectively) are also very influential among other factors shown in Table 4. As discussed, residents are more likely to use open spaces if they are within a walkable radius which supports the proximity/distance performance.

Table 3

Types of Public Open Spaces Mostly Accessed

		Responses		Percent of all Cases
		N	Percent	
Public Open Spaces	Parks	174	29.8%	82.9%
	Squares	53	9.1%	25.2%
	Zoos	63	10.8%	30.0%
	Sports Facilities	95	16.3%	45.2%
	Childrens Playground	66	11.3%	31.4%
	Beaches	46	7.9%	21.9%
	Public Gardens	82	14.0%	39.0%
	Others	5	0.9%	2.4%
	Total	584	100.0%	278.1%

Table 4

Factors Influencing Access to Public Open Spaces

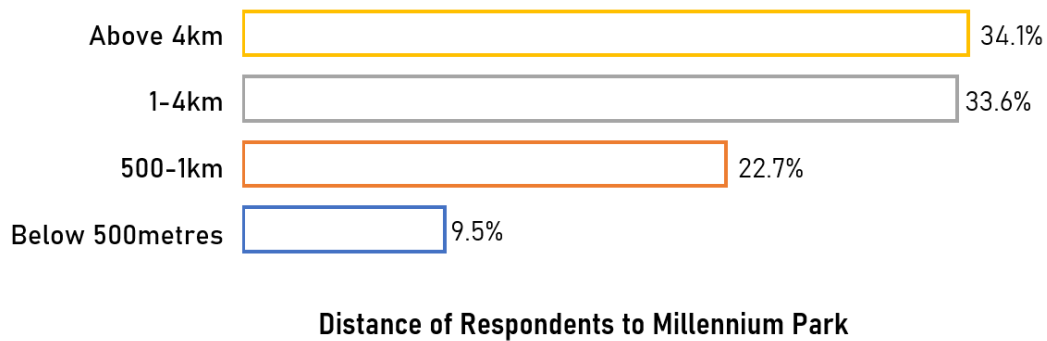
		Responses		Percent of all Cases
		N	Percent	
Factors	Proximity	94	13.4%	45.0%
	Security	93	13.2%	44.5%
	Convenience	130	18.5%	62.2%
	Quality of Space	107	15.2%	51.2%
	Congestion	47	6.7%	22.5%
	Public Transport	50	7.1%	23.9%
	Services in Space	104	14.8%	49.8%
	Streets and Parking	77	10.9%	36.8%
	Others	2	0.3%	1.0%
	Total	704	100.0%	336.8%

Millennium Park Accessibility

Three of the important criteria or influencers of accessibility are distance of the individual to the park, time of travel to the park and the mode of transportation to the park. This shades light on the type of park users and where they are coming from and their perception on the accessibility of the park. As indicated and discussed in the literature of this study the consensus and recommended walkable distance to a park is below 500metres and takes below 15 minutes (UN-Habitat, 2020a). The findings from literature shaped this part of the research findings.

Figure 29

Distance of respondents to Millennium Park



Results of this analysis showed, in figure 29, that only 9.5% of participants live within the walkable threshold of 500m and below. More concerning is that there are more residents (67.7%) who live beyond 1 kilometre radius from the park than those within the radius. This is due to the rapid and expansive urbanisation happening in the FCT, where most of the civil servants cannot afford to live within the city centres and can only resort to the poorly developed outskirts. The result from ‘time of travel to Millennium Park’ was paired with the distance response and used to determine the correlation between the two dependent entities to validate the finding. It was found, from Pearson’s correlation coefficient, that the two have a correlation coefficient of 0.633 which is very strong notwithstanding the factor of mode of transportation.

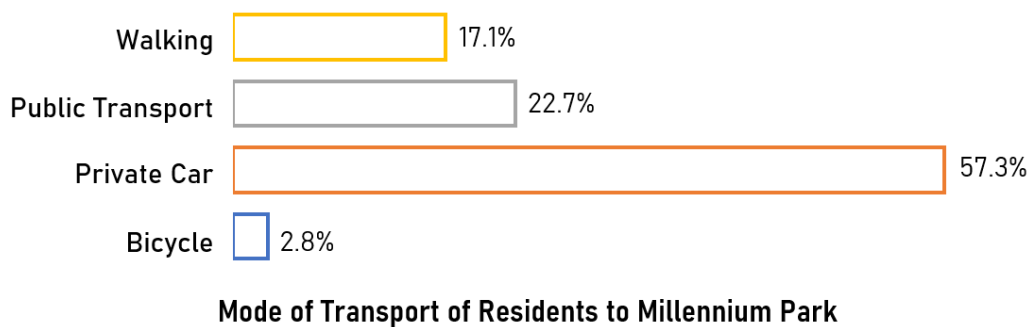
Table 5

Time travelled & distance to Millennium Park Crosstabulation

		Distance to Millennium Park				Total	Percentage
		Below 0.5 kilometres	0.5 km -1 kilometre	1 -4 kilometres	Above 4 kilometres		
Time travelled	Below 15 mins	19	16	0	0	55	26.1%
	15 - 30 mins	1	27	22	22	96	45.5%
	31 - 60 mins	0	3	26	26	33	15.6%
	Above 1 hour	0	2	24	24	27	12.8%
	Total	20	48	71	72	211	100%

Pearson's Correlation Coefficient = 0.633

Figure 30

Mode of Transport to Millennium Park

For the mode of transport of use by most users of Millennium Park, more than half (57.3%) of users use their private cars to commute to the park. Followed by a wide margin, public transport users with 22.7%. The low public transport use to the park is owed to the poor public transport system in the city, the city only has a limited and not enough number of buses that is mostly used by civil servants and other business owners to commute to their work places. With its large population, the transport sector is in poor condition to carter the needs of residents, making most to resort to buying private cars for their daily use. The disadvantage of private cars in such big city is it aggregates to slow traffic along major roads of transit. Looking at the foregoing it is no surprise that those that walk to the park and those that cycle are very few with 17.1% and 2.8% respectively.

Figure 31

One of the Gates of Millennium Park and a Walkway in the Park (Abuja, 2022)



To cap the accessibility section, we asked respondents to identify and select their unique personal constraints that stops them from using Millennium Park, be it entirely or partially. This finding will help in understanding the human factor in

public spheres and highlight factors that are beyond reparation through public space design only. The top personal challenges as revealed in Table 6 are Time constraint and Work schedule, 26.9% and 19.1% respectively. This finding is supported and related to the high number of civil servants in the city, as revealed in Figure 26, that mostly work 9am to 5pm daily excluding weekends. Moreover, Abuja is the administrative capital of Nigeria with a lot of workers at the various cooperates head offices. Transportation is another key constraint to residents in Abuja with 16.3% of respondents stating it affects user's patronage of Millennium Park. It is was earlier noted, under mode of transportation, that the city has an inefficient public transport system, making movement difficult. Even though access to Millennium Park is free, cost of recreation (14.7%) is said to be hindering residents' participation in Millennium Park. Food items, fee for other services like kids' entertainment contribute to this issue.

Table 6

Personal Constraints Affecting Residents Access to Millennium Park

	Responses		Percent of all Cases	
	N	Percent		
Persona Constraint	Health Challenges	20	4.6%	9.5%
	Lack of Interest	39	9.0%	18.6%
	Fear (i.e., crime, nature)	36	8.3%	17.1%
	Time Constraint	117	26.9%	55.7%
	Cost Of Recreation	64	14.7%	30.5%
	Transport Problem	71	16.3%	33.8%
	Work Schedule	83	19.1%	39.5%
	Others	5	1.1%	2.4%
	Total	435	100.0%	207.1%

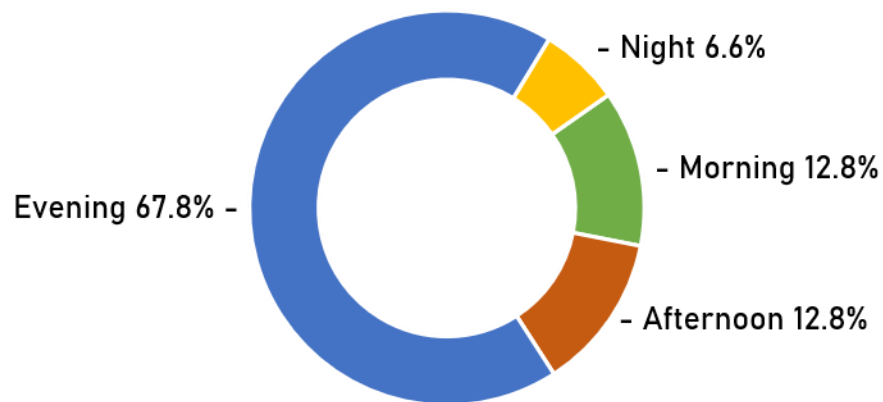
Use

It is equally important to understand how the Millennium Park is used by residents and document their experiences for the betterment of Public open Spaces.

Use and user part of the findings includes details on the frequency of use, favourite time of use, activities in park, nature of use and problems encountered. The evening hours (67.8% of respondents) were found to be the most popular time to visit Millennium Park because the sun is less intense and hot, and since most offices and cooperative businesses close at that time, giving their employees time to spare. The Morning and Afternoon hours (12.8% of responses each) were noted to be equally popular among users, mostly resultant from weekend users. The park closes every day at 6.30 p.m., hence the least number of visitors at night (6.6%). As a result, individuals who like the night may be alluding to the last few minutes before closing time or could be simply making an error of judgment.

Figure 32

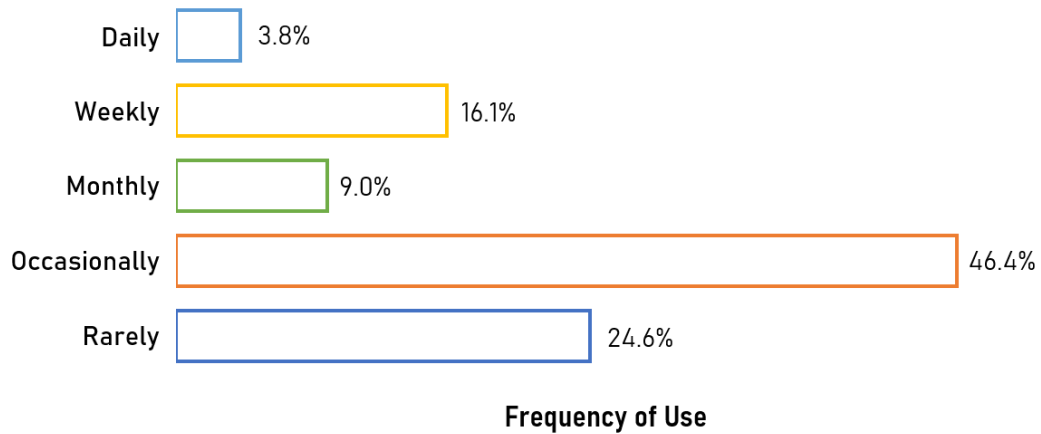
Favourite Time of Park Use



Favourite Time of Use - Millennium Park

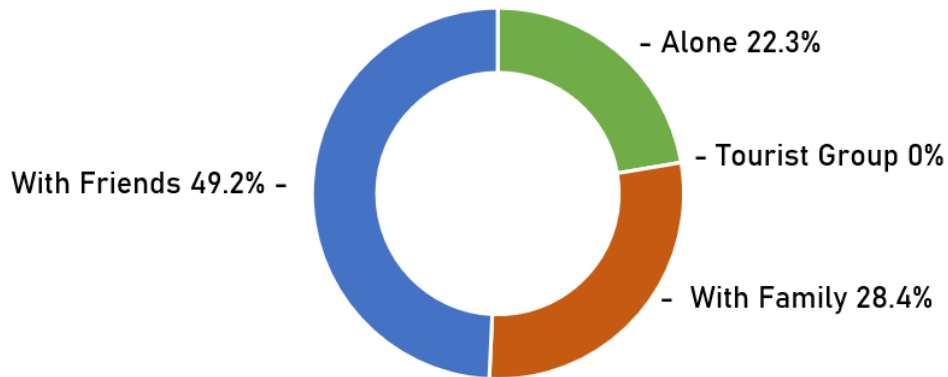
Millennium Park has relatively low routine users as more than half of users are either occasional (46.4%) or rare (24.6%) users. While another 9% only use the space on a monthly basis. Daily and weekly users (3.8 and 16.1 percents respectively) don't amount to a quarter of all users. This is because of the low number of residents who live within the walkable radius to the park. Also, the park has not much entertainment or activities, especially for adult users. Most adult will rather hangout at lounges, bars or other similar spaces.

Figure 33

Frequency of Users' Use

In conjunction with regular activities in the park it is imperative to inquire on ‘in who’s company do they do these activities and what are the problems they encounter while in the park.’

Figure 34

How Residents Visit Millennium Park**How Residents Visit Millennium Park**

The findings shown in figure 34 shows that 49.2% of users visit the park with their friends while another 28.4% use the space in company of family.

Persons that like to visit alone are the least of the category with 22.3%, much of which are recreational/leisure users. The engagement of family and friends was identified as the top activity, with 35.1% of respondents doing so. Another common activity among park visitors is recreational and leisure use (30.7% of respondents), which includes sitting, strolling, etc. Eating and children's entertainment came in third and fourth, respectively, with 15.7 and 9.9 percents.

Table 7

Users' Regular Activities in Millennium Park

	Responses		Percent of all Cases
	N	Percent	
Eating	68	15.7%	32.2%
Spending time with family and friends	152	35.1%	72.0%
Recreational/leisure Use	133	30.7%	63.0%
Community Event	31	7.2%	14.7%
Kids Entertainment	43	9.9%	20.4%
Others	6	1.4%	2.8%
Total	433	100.0%	205.2%

Documenting the problems people regularly encounter in public spaces is very crucial to making our public spheres safe, inclusive and convenient for all. For this research and case study the prevalent problem noted was lack of effective maintenance culture, 23.7% of the participants agreed with this notion and also expressed their dismay to the pollution (17.1% of respondents) build up in the space and streets leading to them. For 18.4% the most critical of their concern is inappropriate behaviours of another user in the park. Accessibility (15.4%) and Streets, parking and sidewalks (13.4%) are among the problems that residents have with using Millennium Park. Other cited Security (10.8%) that includes fear of micro animals and human advances as their problem with the park. Many studies

like Isa in 2019 have cited poor maintenance culture in Nigeria's public facilities. Most of which are completely neglected to the state of unrepairable dilapidation.

Table 8

Problems Encountered at Millennium Park

	Responses		Percent of all
	N	Percent	Cases
Pollution	68	17.1%	32.2%
Security	43	10.8%	20.4%
Streets, parking & sidewalks	53	13.4%	25.1%
Poor Maintenance	94	23.7%	44.5%
Accessibility Problems	61	15.4%	28.9%
Socio-Cultural Problems	73	18.4%	34.6%
Others	5	1.3%	2.4%
Total	397	100.0%	188.2%

Figure 35

Pictures Showing User Activities in Millennium Park (Abuja, 2022)



Figure 36

More Pictures Showing User Activities in Millennium Park (Abuja, 2022)



Park Attributes

To get the perception of quality of users of Millennium Park, the study asked respondents to rate the quality of selected park attributes namely; security, recreational possibilities, attraction, services & convenience, accessibility, parking lot, pavements, urban furniture, congestion, maintenance, landscape and their overall perception of the park's quality. The data was collected on a five-degree Likert scale and the means, standard deviations and correlation of the individual attributes to that of the overall perception of the park quality were analysed.

i. Security

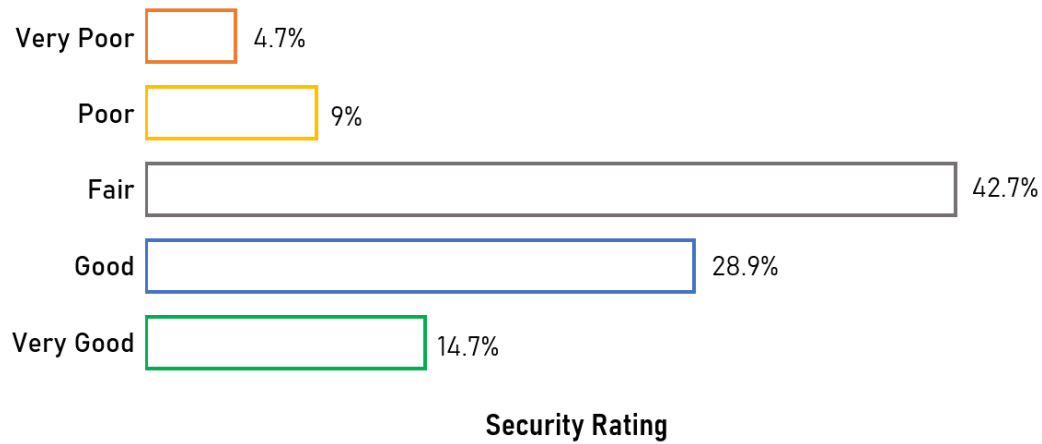
Millennium Park's location makes the park a safe space with close to zero crimes, as mentioned in the foregoing, the park is located at the heart of the FCT close to administrative and governments quarters. Thus, the location is an important part of the city with good security networks and less nuances in relation to other part of the nation. This observation is buttressed by the 'Good' mean

rating of 3.40 by users of the park and a 1.001 standard deviation, meaning most (around 68%) of the ratings are within a standard deviation from the mean.

Figure 37

User Perception on Security

ii. Recreational Possibilities



Figures 35 and 36 above shows some of the recreational possibilities in the park. While a sum of 46% of respondents think of the park's recreational possibilities to be sound and beneficial. The analysis of the rating found a Fair mean rating of 3.38 and a standard deviation of 0.878. From observation, the park features kids' entertainments, strolling paths and a golf course, though exclusively for club members. There is need for more adult entertainment.

iii. Attraction

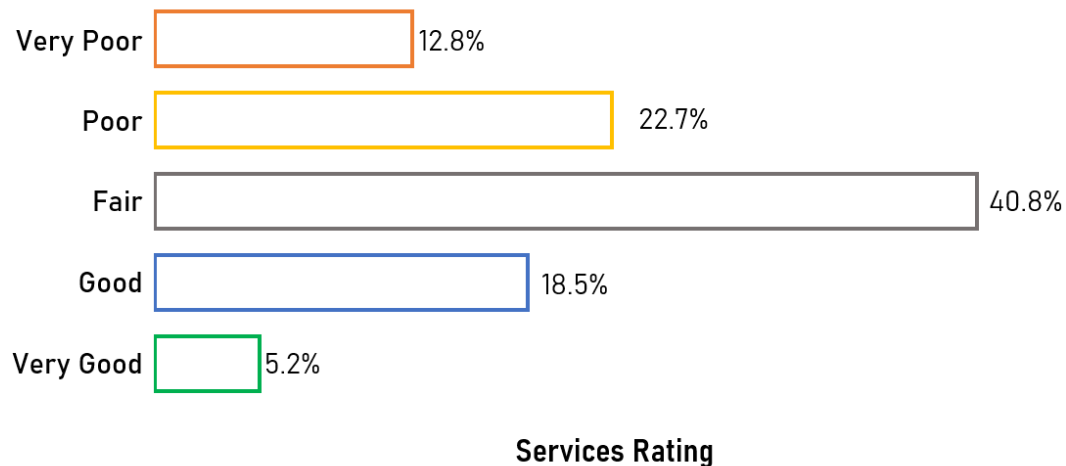
A close attribute to the recreational possibilities, this attribute is concerned with the willingness of residents to visit the park. The mean quality score recorded for this attribute is Good with 3.41. Most of the respondents (39.3%) marked it to be good closely followed by another 35.1% that marked it as Fair. Only a few, 5.2 percent rated the attraction attribute as very poor.

iv. Public Services

This entails services like toilets, ATMs, gift shops and food lounges. From observation, the park lacks all the mentioned services except for toilets which itself is deemed inadequate. As a result of this, residents don't access Millennium Park for its services rather mostly are recreational and leisure users. Consequently, it was not surprising for public services to have the least mean quality rating, 2.81, of all the analysed park attributes with a standard deviation of 1.049. Services are important to users' satisfaction and length of stay in a public space.

Figure 38

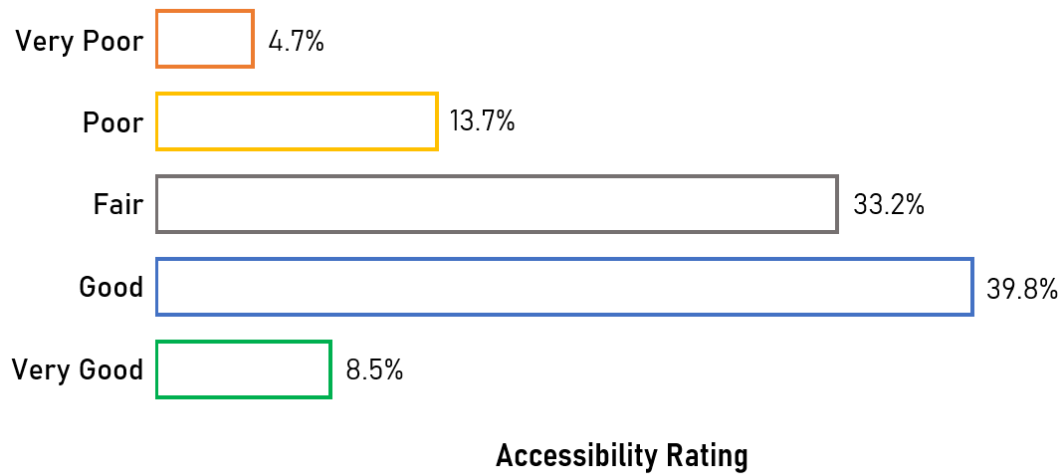
User Perception on Public services



v. Accessibility

After understanding the conditions of residents' accessibility in the accessibility subsection of this chapter, the study inquired about the perception of the quality of access to Millennium Park as a park attribute. The Accessibility recorded a fair mean score 3.34 and most of the respondents (39.8%) marked it to be good closely followed by another 33.2% that marked it as fair.

Figure 39

User Perception on Accessibility

vi. Parking Lot

Millennium Park features a relatively adequate parking lot for the trooping visitors. The mean quality score as recorded by participants for parking lot is fair with 3.24 score. A whopping 40.3% of respondents rated the parking lot as fair and adequate for users

vii. Pavements

Although mostly green, Millennium Park features various walk paths covered in either concrete or marble. This includes a trident geometry rectilinear route that is entirely covered with Roman white travertine. This attribute is concerned with the application, continuity, appeal and material quality of those pathways. Residents are mostly ok (41.7%) and satisfied (35.1%) with the pavements in the park. The ratings constitute a 'Good' mean quality score of 3.5 value. Thus, making it one of the highly rated attributes of the park.

Figure 40

Pictures of Some of the Pavements in Millennium Park (Abuja, 2022)



viii. Urban Furniture

Ratings on Urban Furniture came in second least after public services with low mean quality score of 3.09 value. The bulk of the respondents (38.4%) rated it to be Fair, followed by good rating with 27.5 % of respondents. Urban furniture includes items and facilities like waste bins, seats, signages, pools & fountains, lighting fixtures et cetera. From observation, there are waste bins and seats at strategic locations in the park, although grossly inadequate. Equally, signages and lighting can be found but also not adequate, only that they are optional furniture and not necessary like the former. The best of the furniture found in Millennium Park are the pools and fountains, which are not only adequate but efficient and aesthetically pleasing. Moreover, the park closes before night, thus lighting is not as crucial as it would have been if the park operates during the night time. Additionally, the side slaps along the trident walk path and edging the pools and fountain are designed for sitting and leisure.

Figure 41

Picture of Pools and Seat Design Edging the Pools (Abuja, 2022)



ix. Congestion & traffic

These attributes seek to understand the perception of the quality of traffic and congestion in the park. Users are more likely to be frequent visitors of a park if they can have their own personal spaces within the park without intrusion by other users. The analysis of this rating reveals a mean quality score of 3.10 although Fair but it's among the least favourite attribute amongst respondents. The larger percent of users rated it as fair too with 46.9% and another 25.6 % rating it Good.

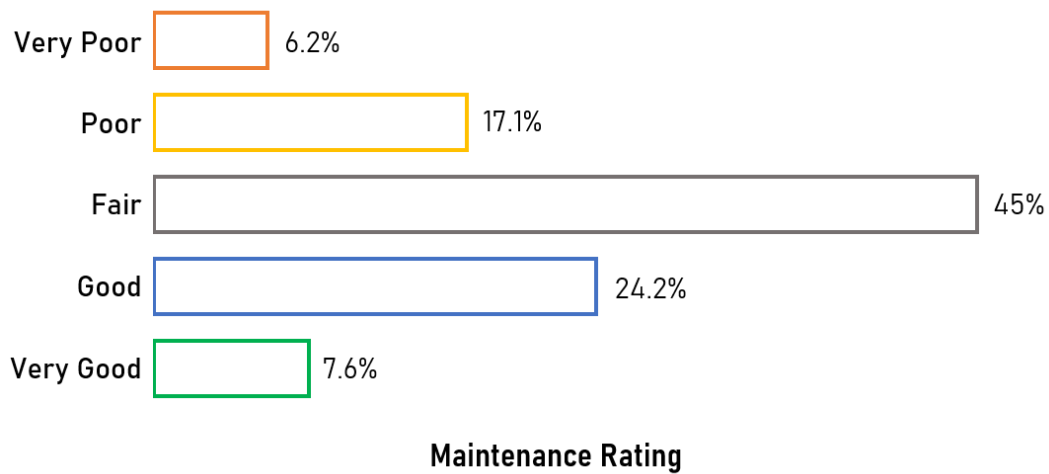
x. Maintenance

Maintenance is one of the major problems of public spaces and facilities in Nigeria as earlier stated. Although the parks maintenance is relatively good, there is still much need for improvement. Residents showed concerns with the maintenance conditions of the park citing it as one of the problems that needs improvement in order to move towards achieving sustainable development. This

issue is extensively discussed in the later part of this chapter under the sustainability subheading. Maintenance, after the analysis has a mean quality score of 3.10 with the ratings represented in Figure 42 below.

Figure 42

User Perception on Maintenance



xi. Landscape

Millennium Park is home to a variety of plants species, featuring a plant reserve, the park main feature is its extensive green cover. Ranging from tall palm trees, deciduous and coniferous trees to small shrubs and grass cover. The grass cover entertains picnics, kids' play area and lots of sitting spaces. The landscape provides a conducive environment for birds and insects alike. Landscape is the most satisfying attribute of Millennium Park with the highest mean quality score of 3.68 which is Good. The park's landscape rating represented in Figure 43 below reveals ratings of 2.8, 8.5, 31.3, 32.2 and 25.1 percents which corresponds to very poor, poor, fair, good, and very good respectively.

Figure 43

User Perception on Landscape

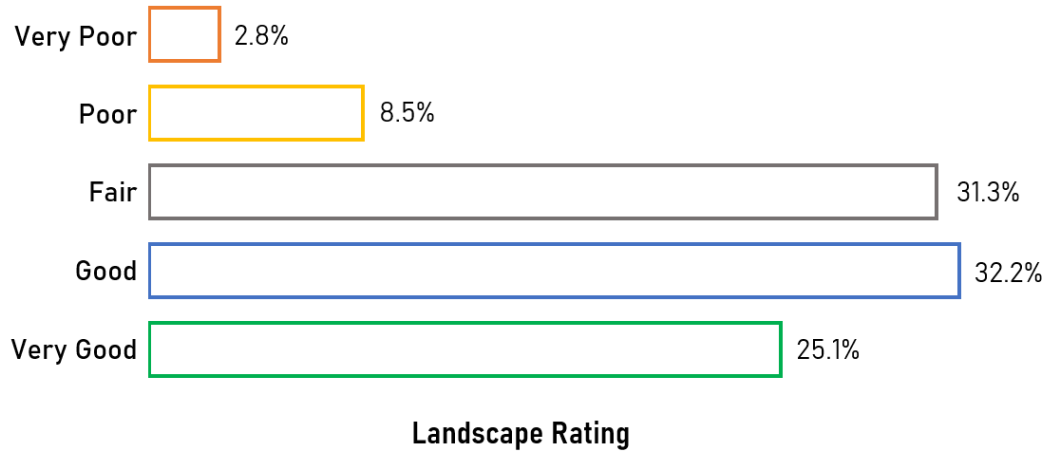


Figure 44

Pictures of Millennium Park Landscape (Abuja, 2022)

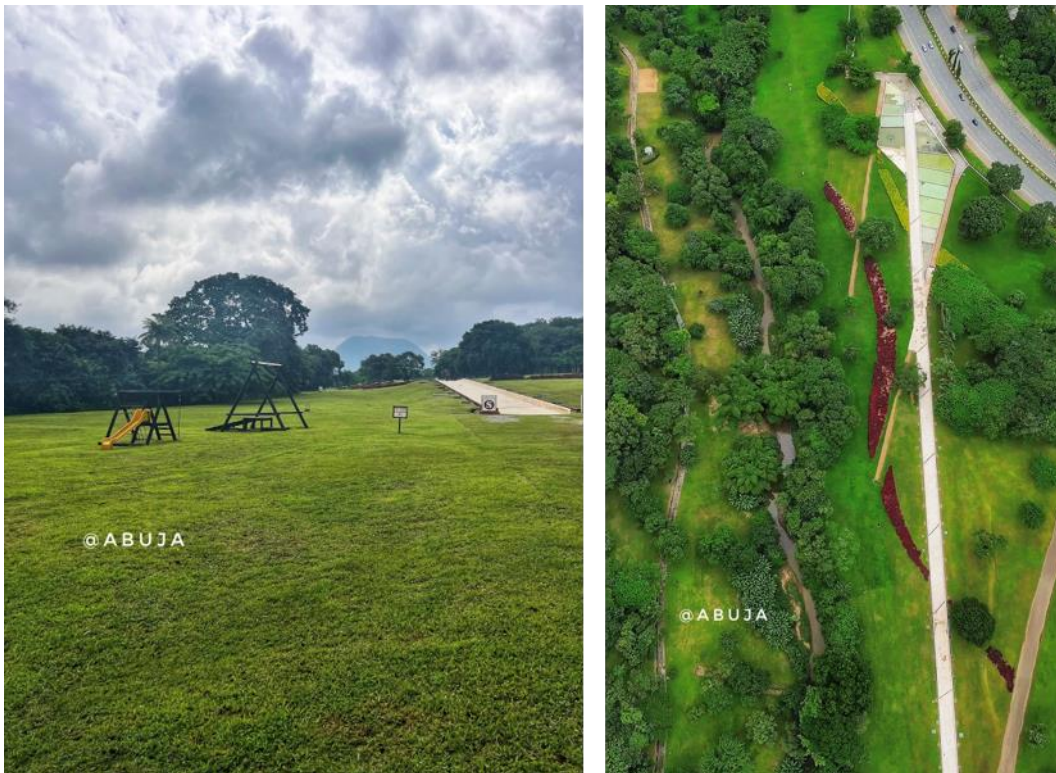


Figure 45

More Pictures of Millennium Park Landscape (Abuja, 2022)



xii. Overall Quality of Millennium Park

The study asked about respondents' perceptions of the quality of the park as an open space in order to determine how the qualities of the park relate to that of the perception of the quality of the park generally. The study of this data yielded a good mean score of 3.52, which is second only to the landscape attributes. 3.8, 6.6, 37.9, 37, and 14.7 percents, i.e., very poor, poor, fair, good, and very good, are the ratings for the parks shown in Figure 46 below. Pursuant to a quick assessment, Millennium Park is a reputable and outstanding public open space in Nigeria with historical significance. The greenery of the parks makes it a particularly tranquil place for relaxation and leisure. There are many benefits to the park, among many others, it is free to enter, in a good location, big, and green. The most significant of its issues include accessibility, particularly for users of public transportation, insufficient recreational opportunities, and insufficient public services.

Figure 46

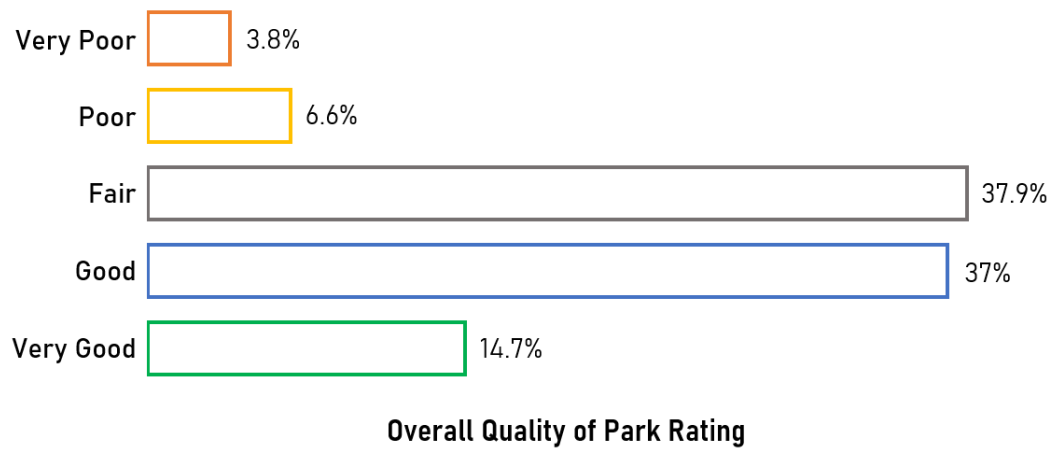
User Perception on The Overall Quality of The Park

Table 9

Perception of Quality of Park Attributes

Park Attributes	Mean	Std. Deviation	Remark
Security	3.40	1.001	Good
Recreational Possibilities	3.38	.878	Fair
Attraction	3.41	.984	Good
Public Services	2.81	1.049	Fair
Accessibility	3.34	.979	Fair
Parking Lot	3.24	.917	Fair
Pavements	3.50	.912	Good
Urban Furniture	3.09	1.027	Fair
Congestion (Traffic)	3.10	.975	Fair
Maintenance	3.10	.978	Fair
Landscape	3.68	1.032	Good
Overall quality of Millennium Park	3.52	.953	Good

Correlation of Park Attributes to Overall Perception of Park Quality

In order to understand users' perception on Millennium Park as whole, the research studied the relationships of the perception of quality of the park attributes to that of the overall perception of quality of the park in general. This analysis highlights the attributes that influences park users' perception on the open space. Landscape having the strongest correlation coefficient of all the attribute means that residents associate the quality of parks to its Landscape and environment in general as pavements, security and recreational possibilities also showed strong correlation. Also, accessibility having weak correlation with the perception of quality of the park indicates residents' commitments to visiting public parks regardless of challenges of accessibility, so far as the park possess good landscape, security and recreational activities.

Table 10

Correlate of Millennium Park Attributes

Park Attributes	Pearson's Correlation Coefficient	
	Overall quality of Millennium Park	Association Remark
Security	0.640	Significant
Recreational Possibilities	0.642	Significant
Attraction	0.491	Moderate
Public Services	0.440	Moderate
Accessibility	0.317	Weak
Parking Lot	0.438	Moderate
Pavements	0.634	Significant
Urban Furniture	0.546	Moderate
Congestion (Traffic)	0.515	Moderate
Maintenance	0.573	Moderate
Landscape	0.755	Very Significant
Overall quality of Millennium Park	1	Perfect

Possibilities for Sustainability

The study further looked in to the possibilities of sustainability in Millennium Park Abuja, to grasp strengths and weaknesses of the park towards sustainable urban growth. The survey asked series of questions to establish the facets of sustainable growth and how they perform against each other. The most decisive response from participants is ability of the park in promoting community engagement with 64.5% of respondents agreeing to it. The novel of Millennium Park in improving air quality was attested by 58.3% of the respondents. Equally, 58.3% also believed that the park supports conservation of urban green, these is evident as the park has a variety of plants species as well as a plant reserve for conservation. The complete sustainability performance is presented below.

Table 11

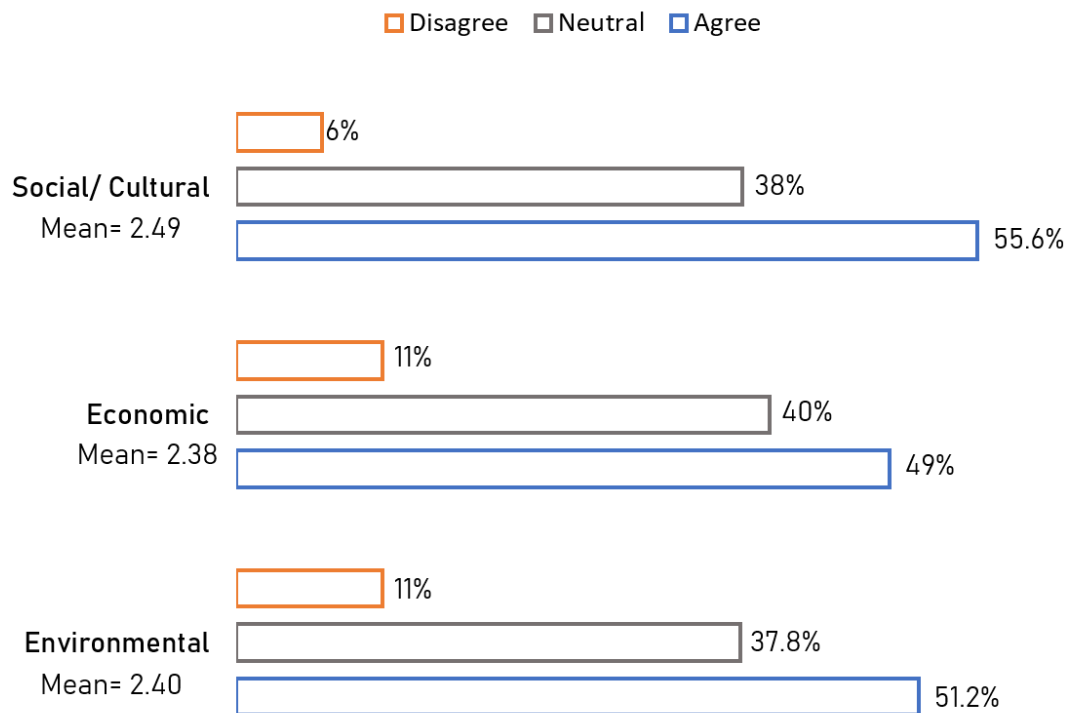
Possibilities for Sustainability

		Disagree	Neutral	Agree
		%	%	%
Social	The park is inclusive	7.6	45	47.4
	The park promotes community Engagement	7.1	28.4	64.5
	Safe and Healthy for all users including Staff	4.3	39.3	56.4
	It promotes Local & Civic Identity	6.6	39.3	54.0
Economic	Park is good attraction for Visitors/Tourist	9.5	34.6	55.9
	Improves value of local trades & Properties	10.4	46.4	43.1
	It employs efficient resource use	11.8	50.7	37.4
	Park has good potential for future expansion	12.3	28	59.7
Environmental	The park improves Air quality	4.7	37	58.3
	The park supports biodiversity	8.5	40.3	51.2
	It supports conservation of the urban green	10	31.8	58.3
	Park supports Waste reduction & Recycling	20.9	42.2	37

A cumulative analysis of the social/ cultural, economic and environmental principles was done to reveal users' perception of three facets of sustainability. According to the analysis, Millennium Park's social/cultural element of sustainable growth has a total score of 55.6% and a mean score of 2.49, making it the most appreciated feature. The environmental component had a mean score of 2.40 and a 51.2% favourable percentage. Finally, respondents' agreement on the economic element was 49%, with a mean score of 2.38.

Figure 47

Social, Economic & Environmentally Sustainable Possibilities



In order to better comprehend users' perceptions of sustainability, the research asked about respondents' knowledge on the context of sustainability and what those with information about sustainability think are the obstacles that need overcoming for sustainable development in the sector of public open spaces. 67.8% of respondents replied that they have viable knowledge on sustainability

leaving only 32.2% of no awareness on the topic. The responses received on the obstacles that need overcoming centred around the following;

- a. Solving the challenges of accessibility.
- b. Better management and maintenance.
- c. Enacting effective public open spaces policies and adherence.
- d. Developing more local parks and ensuring effective adherence to urban planning provisions.
- e. Planning for future expansion.
- f. Imbibing green and clean energy systems in public spaces.
- g. Parks should be designed to collect stormwater and withstand flooding.
- h. More inclusivity of the poor by developing public open spaces in low-income settlements.
- i. Security, orientation and campaign on good user behaviour on public spaces.
- j. Improved recycling and waste management systems.
- k. Using more sustainable and recyclable materials in public spaces development.

Figure 48

Respondents with Knowledge on the Context of Sustainability

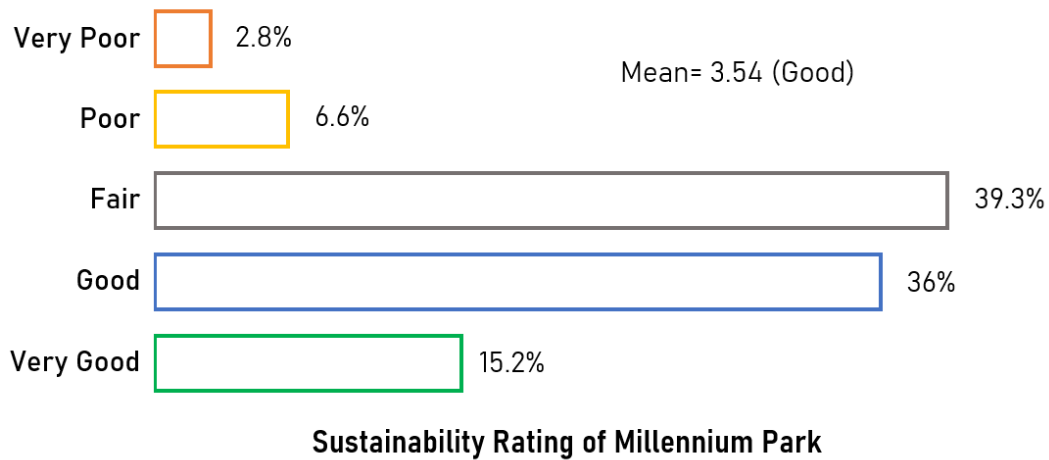


Respondents with Knowledge on the Context of Sustainability

The survey ended by asking residents what their perception is on the overall contribution of Millennium Park in Abuja is to sustainable urban growth. The finding, after analysis showed that residents rated the possibilities of sustainability in Millennium Park to be good with a mean score of 3.54 value. The rating percentage is represented in the Figure (49) below.

Figure 49

Overall Sustainability Rating of Millennium Park



Evaluation of Findings

The deduction from this chapter includes answering the research questions of the study. The first research question on how can quality of public open spaces be explored, was answered in the literature review of this research. Public open spaces can either be assessed on site scale level or at a city-wide level. Each of the levels of assessment have a set of indicators that guides the assessment. Then, for the second research question on what factors determine the level of urban dwellers' access to public open spaces in Abuja, this research found that convenience, quality of space, services in space, proximity and security to be the greatest factors that influence residents' access to public open spaces. Also, time constraint, work schedule, transport problems and cost of recreation were found to deter and affect residents from accessing public open spaces. Lastly, the third

research question on what are the park attributes that enhances the quality of public parks in Nigeria? The findings of this study suggests that landscape quality, pavements, security and recreational possibilities are attributes that are significantly associated with park quality in Nigeria. Likewise, accessibility and public services in parks like ATMs, toilets, gift shops et cetera pointedly affects users' perception of park quality in Nigeria. An elaboration of the research finding in regards to the research question is found in table 12 below.

Table 12

Research Questions and Findings

Research Question	Findings
1. How can quality of public open spaces be explored?	<p>a. City-wide Assessment</p> <p>Indicators: Quantity, Distribution, Connectivity, Diversity, Accessibility, and Quantity.</p> <p>b. Site Specific Assessment</p> <p>Indicators: Use & User, Accessibility, Amenities & Furniture, Comfort & Safety, and Green Environment.</p>
2. What factors determine the level of urban dwellers' access to public open spaces in Abuja, Nigeria?	Convenience, Quality of space, Services in space, Proximity and Security were found to be the factors that generally influence residents' access to public open spaces in Abuja, Nigeria.
3. What are the park attributes that enhances the quality of public parks in Nigeria?	Landscape quality, pavements, security and recreational possibilities are attributes that are significantly associated with park quality in Nigeria. Particularly Landscape quality, which had the strongest correlation to overall park quality.

CHAPTER V

Discussion

The study sets out to explore the quality of public open spaces via Millennium Park Abuja, Nigeria. In doing so it also identified how public open spaces can be assessed, factors affecting residents' visit to public open spaces and park qualities that influence the overall perception of park qualities in Nigeria. The findings of this research are categorized and discussed in four parts; demography, accessibility, park qualities and possibilities of sustainable urban growth.

Population analysis of Millennium Park users is a vital indicator on the participation and representation of the various human social groups in the park. It highlights the social and economic inclination and shape of the population. The findings on this forms part of the research recommendation on achieving sustainable urban growth. The gender of the population which revealed the park to be a heavily male dominated environment stresses the need for more inclusion of the girl gender in our public spaces. Likewise, the elderly residents' participation in Millennium Park was found to be very low in comparison to the youth population who make around three quarters of the whole population. This finding appears to be a sample of the whole population of the nation as reported by the National Bureau of Statistics (NBS, 2021), that Nigeria has a youth population (aged 15-35 years) of approximately 90 million, which represents about 45% of the country's total population. For occupational distribution, most participants stated to be students and civil servants. Another good number of which are unemployed, which was also reported by the National Bureau of Statistics in their Multidimensional Poverty Index report (MPI), that young people unemployment rate in Nigeria was estimated at 53.4% (NBS, 2022). Finally, nearly all users are healthy, without medical challenges nor are they persons with disability. The highlights on gender, age and health are in line with findings of similar researches like that Rija (2017) and UN-Habitat (2021), where both studies stressed the need

for more inclusion of the vulnerable and minority groups in public spaces in their various research locales.

Abuja the federal capital territory has a fair share of public open spaces in its municipals. Relatively, the FCT has more open spaces than other States in the nation due its stricter compliance to urban planning provisions and because it's the capital of the federation, thus the face of the nation. Majority of residents have acknowledged the presence of at least a public open space in their neighbourhood. Although some of these spaces require entry fees or/and are owned by private individuals or corporates. Furthermore, residents favour parks, sports facilities, public gardens and children's playgrounds to other public open spaces found in the city. Rija (2017) also noted that parents are most likely to engage in outdoor activities in their neighbourhood for children's entertainment. Residents cited convenience, quality of space and services offered in a public open space as the influencing factors on the kind of space to visit. It was similarly reported by Villanueva et al. (2015) that users will stay longer in spaces if there is good provision for toilet in the spaces. These findings are suggestive of users' preferences to the quality of space and services offered in the space, rather than other factors of accessibility. Thus, residents are willing to travel long distances for qualitative spaces and good services. Millennium Park is in the same way located close to only a few residential neighbourhoods, despite being in the heart of the city, the park is surrounded by mostly offices and administrative quarters. Despite the distances travelled by most users, users named time constraints and work schedule ahead of transportation problems as the constraints affecting their patronage of Millennium Park. Given earlier findings indicating a significant portion of participants work as civil servants, the time and work schedule restrictions are relevant. The relevance of the civil servants result also extends to the fact of the evening time being the favourite time of visits and the busiest hours, even though majority of the users are occasional visitors and only a few regulars. Millennium Park users are occasional users probably because the popular activities in the park are leisure events like picnics and recreational activities like strolling

which may not necessitate regular reoccurrence. To end this subset, the greater problems encountered by residents in Millennium Park are largely maintenance, pollution and socio-cultural problems like the behaviours of other users which can hardly be tamed completely.

Millennium Park is one of the finest public parks in Nigeria. The park covers an area of approximately 32 hectares and is considered to be one of the largest public parks in Nigeria. The park features a stunning array of flora and fauna, including trees, flowers, shrubs, grasslands and several water features. Millennium Park is also home to a number of recreational facilities, including playgrounds, picnic areas, and walking trails, making it a great place to unwind and enjoy the outdoors. The park's most adored attributes, according to users, is its extensive and green landscape cover, as well as its pavements and serene local environment. Other favourite park features include its attraction, recreational possibilities and the security it offers users. Residents liken the park's landscape to the overall quality of the park more than any other feature of the park. Recreational possibilities, security and the pavements in the park were also liken to the overall quality of the park. This indicates that people of Abuja, Nigeria are more inclined to use a public park if it has attractive landscaping, organized pavements, and recreational opportunities in addition to offering users security. Aspects of the park that received low ratings from users included accessibility and public services. Although, public services are moderately associated to the overall quality of the park, accessibility has the weakest association to the overall quality of the park. Meaning that locals are willing to go great distances for a park with attractive landscaping and recreational value. To sum up, residents are generally happy with the parks features but expressed concerns on the maintenance culture, adequacy of urban furniture and services in Millennium Park.

The findings of this study indicate a high level of consensus among the participants that Millennium Park has made a positive contribution to sustainable development. The participants expressed a great deal of enthusiasm about the subject, particularly with respect to the socio-cultural and environmental aspects of

the park. The measures taken in the development and management of Millennium Park were seen as promoting sustainability. However, some of the residents recommended that there needs to be an improvement in waste management and recycling. The participants also emphasized the need for more parks and green spaces in other parts of the city to ensure that all residents have access to such amenities. Despite this, the participants still viewed Millennium Park as the standard for park design in Nigeria.

CHAPTER VI

Conclusion and Recommendations

In conclusion, the study on the quality of public open spaces for sustainable urban growth, using Millennium Park Abuja as a case study, has provided valuable insights into the role of parks in promoting sustainable development. The use of questionnaires and field surveys allowed for a comprehensive evaluation of the park, revealing both its strengths and weaknesses.

By examining the park's design, accessibility, amenities, and management, the study identified several areas where improvements could be made to enhance the quality of public open spaces in Abuja. The findings suggest that the provision of well-designed parks and green spaces can contribute to sustainable urban growth by promoting physical activity, social interaction, and a sense of community. For example, despite the challenges of accessibility to the park, such as long distances and an inefficient public transport system, the study found that the captivating landscape and recreational possibilities of the park still attract residents, highlighting the importance of such amenities in urban areas. However, the study also highlights concerns regarding maintenance, inadequate park furniture, and public services. Addressing these issues would further enhance the park's contributions to sustainable development. Additionally, the study found that the park possesses good qualities that contribute to sustainable development, such as its contribution to social cohesion and environmental preservation. It is hoped that this research will inform urban planners and policymakers in Abuja and beyond about the importance of public open spaces and the need to prioritize their development in sustainable urban growth plans.

Overall, the study provides a compelling case for the critical role that public open spaces, such as parks, can play in promoting sustainable urban growth, improving the quality of life for city residents, and building more resilient and sustainable cities for the future.

Recommendations

Drawing from the conclusions of this study, various recommendations can be made to enhance the quality of Millennium Park Abuja, Nigeria and other public open spaces across the city.

- i. Firstly, the park's management should prioritize maintenance and provide more park furniture to enhance the park experience for visitors. This could include increasing the number of seats, providing more trash cans, and improving the overall cleanliness of the park.
- ii. Public services in the park should be improved to provide a better experience for visitors. This could include the provision of improved public restrooms, ATMs, gift shops and information kiosks.
- iii. At the city level, efforts should be made to improve public transport connectivity by providing more means of public transport like the rapid transits systems (trains), trams, and public buses.
- iv. Also at the city level, government should develop new qualitative neighbourhood open spaces and revitalize existing ones, in addition to ensuring equitable distribution of the open spaces and ensuring the interests of vulnerable groups (girls and elderly) are protected.
- v. Efforts should be made to increase awareness of the park's benefits to the environment, social cohesion, health and wellbeing, as this could increase the number of visitors to the park and promote sustainable urban growth.
- vi. Architects and planners should pay attention to socio-cultural context in park designs; considering privacy in design by providing secluded seating areas or natural buffers for women seeking privacy or relaxation will increase access for women in Nigeria.
- vii. Lastly, for further studies, a study could be conducted using the city-wide approach of public open space assessment in Abuja, Nigeria. Covering all open spaces in the city will provide more data

on the possibilities of sustainable urban growth. This was a limitation of this study. Additionally, future studies could investigate the ecological qualities of parks in Abuja, Nigeria, and document their microclimatic conditions.

Overall, if these recommendations are implemented, they have the potential to significantly improve the quality of public open spaces in Abuja, Nigeria. Not only would this improve the overall aesthetic appeal of the city, but it could also serve as a catalyst for sustainable urban growth. Ultimately, enhancing the quality of public open spaces is a critical step towards creating a more liveable, resilient, and sustainable city.

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APPENDICES**Appendix A**

NEAR EAST UNIVERSITY

SCIENTIFIC RESEARCH ETHICS COMMITTEE

05.01.2023

Dear Mohammed Isa Isa

Your application titled **“Evaluating Quality of Public Open spaces for Sustainable Urban Growth: A Case Study of Millennium Park Abuja, Nigeria”** with the application number NEU/AS/2022/184 has been evaluated by the Scientific Research Ethics Committee and granted approval. You can start your research on the condition that you will abide by the information provided in your application form.


Prof. Dr. Aşkın KİRAZ

The Coordinator of the Scientific Research Ethics Committee

Appendix B

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