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Challenges and Sustainability of Urban Open and Green Spaces for Recreation and Tourism in Abuja, Nigeria.

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Abstract

Recreation and tourism activities in urban open and green space facilities (UOGS) are crucial for the psychological, physical, and emotional well-being of residents, visitors/tourists, and the sustainability of the environment. Despite the importance of UOGS to humans and their environment, there are limited studies on the benefits and challenges confronting their management in urban areas, especially in developing destinations like Nigeria. This article examines the benefits and challenges associated with the management of UOGS, its environmental impacts, and sustainability in the metropolitan area of Nigeria's Federal Capital Territory (NFCT), Abuja. Data for the study were obtained from 6 facilities and service operators within the 6 districts of the NFCT. 60 copies of questionnaires were administered with a sub-total of 10 copies at each of the 6 selected locations. Descriptive and statistical analyses were employed for the study. The study revealed that improving our day-to-day lives and human health has the highest count of 13 and this represents 21.7%, constituting significant responses to the benefits of UOGS. However, responses from service operators reveal moderate patronage owing to inflation, and the rising cost of facilities services management which resulted in 15

	counts, representing 25%. Nonetheless, the study findings reveal that the environmental impacts and sustainability of the UOGS do not vary significantly on human health and environmental quality in the NFCT. These findings have implications for the sustenance of services being provided by the management of UOGS for recreation and tourism, albeit with improvements by the operators and relevant council authorities. Policy on tax rebates to reduce the impact of inflation on the operators of the UOGS and monitoring of the UOGS by relevant authorities to ensure that the facilities are adequately maintained for sustainability can be considered.

Introduction

In the context of urban planning, physical development, and environmental sustainability, the drives for infrastructural facilities, and recreational and tourism enhancement are essential for human well-being. The establishment of these centers such as the urban green spaces (UGS) including parks, gardens, and other greenification areas creates harmony in the built environment and cannot be taken for granted (Majebi, 2017; Majebi et al., 2023). These facilities and services are some of the essential considerations that need to be put in place by stakeholders, including private and government agencies. This is because there is a spatial connection between and among the components of the urban-built and modified environment for the well-being of humans and environmental management. Thus, this can be observed from the context of the man's-built environment, infrastructural development and management, green space management, recreation, tourism, and human and environmental sustainability (Onokerhoraye, 1984; Akinbode, 1995; Mabogunje, 1999). At the global level, the essence of urban planning for infrastructural and facilities development such as urban green spaces management is classified mainly for two purposes. These are for human development (relaxation and tourism attractions) and environmental sustainability (ecosystem-friendly and balanced) (Mabogunje, 1999; Ibrahim et al., 2015).

Thus, the benefits of UGS facilities and services for human improvement and development include (a) pleasure and site visitation (b) improving our day-to-day lives and human health (c) boosting mental and physical health, (d) promoting peace and relaxation (e) improving air quality and reduces premature mortality, (f) reducing noise, (g) enhancing biodiversity, (h) moderating temperature during hot periods, (i) provision of cool spots and shaded areas, (j) protecting and enhancing safety environment, (k) creating excursion, scientific discoveries and technical jobs (m) sparking youth's interest in tourism and hospitality ventures, and (n) cooperation with countries around the world. On the other hand, the benefits of urban green

spaces facilities and services for improved environmental sustainability are as follows (a) ecosystem balance, (b) nature-friendly (c) conservation of biotic life, (d) enhancing urban planning and physical development, and (e) aesthetic environment for quality air (Onokerhoraye, 1984; Akinbode, 1995; Mabogunje, 1999; Ojeifo, 2005; Ibrahim et al., 2015; Cyril & Olumide, 2016; Obiadi & Onochie, 2018; Agbebaku, 2019; Eseigbe, 2021).

However, despite the benefits of UGS facilities and services, they are confronted with several constraints, including (a) a high rate of illegal land use and land use violation (b) compliance to land use of recreational facilities (c) perception in human attitude, (d) difficult to measure how these spaces are used (e) assessment of the financial positive of green space, (f) urban mobility to green spaces areas (g) level of patronage, distance factors and security, and (h) rising cost of facilities maintenance and service delivery. This is evident in most West African destinations such as the metropolitan areas of Abuja, Nigeria. Nonetheless, in recent times, there has been renewed support from the government and concerned agencies on the development and accessibility of the areas marked for green space facilitates based on the original and reviewed master plan for conformity on assigned land use. In addition, the drives for accessibility and attractiveness of UGS and resuscitation of non-functioning ones to promote tourism and recreational development for improved human health and environmental sustainability have been suggested (Ojeifo, 2005; Ibrahim et al., 2015; Cyril & Olumide, 2016; Obiadi & Onochie, 2018; Eseigbe, 2021). The accessibility and attractiveness of UGS infrastructures, facilities, and services are functions of the levels of regional planning and urban renewal processes that have taken place over time. There is no doubt that these plans have been re-defined, with the master plan of towns and cities in line with best global practices and standards for UGS management and environmental sustainability. For effective urban planning and adherence to the original master plan for town and city formation for the NFCT, Abuja, the ethics of town and regional planning need to be upheld and sustained (Onokerhoraye, 1984; Paul & Steven, 2010; Ujoh et al., 2011; ACB Consulting Services, 2021; Eseigbe, 2021; AGIS, 2023; FCDA, 2023; AGIS, 2023).

The attractiveness of urban green spaces facilities and infrastructures determines the values, level of patronage, and justification for the continuous involvement of the service provider in its operations. This can be seen from the perspective of service delivery, irrespective of its types and nature as a green space, park, garden, ranch, resort center, and scenic environment. In the Nigerian context, urban green spaces management within the Abuja metropolitan area is still in the developmental stages, when compared to those of advanced destinations. Nevertheless, the benefits of urban green space management are the same and applicable to advanced and developing metropolitan areas at destinations. Nonetheless, there exists a complex relationship between and among communities and nations where these facilities and services are rendered. Thus, the natures, types, and patronage of UGS facilities and services delivery vary from and with (a) residents' income level, (b) style of living, (c) region to region, and (d) religion to religion. The demand for UGS in a city like Abuja, NFCT necessitates the need for land evaluation, specification, and space management to attain a pleasant

microclimate and environmental aesthetics and quality of the high-sprawl environment of human conglomerates (Ujoh et al., 2011; ACB Consulting Services, 2021; Eseigbe, 2021; AGIS, 2023; FCDA, 2023). These measures are also being observed in other Nigerian cities, including Calabar, Enugu, Lagos, Uyo, etc. In some parts of these cities, evidence abounds of the ease of accessibility, attractiveness, and management of green space areas for recreational and hospitality ventures, enhancing scenic environments for socioeconomic gains (Basorun, 2004; Ojeifo, 2005; Ujoh et al., 2011; Ivbijaro, 2012; Ajith, 2015; Ibrahim et al., 2015; Majebi, 2017; Eseigbe, 2021; AGIS, 2023; FCDA, 2023).

Many studies (Basorun, 2004; Ojeifo, 2005; Ujoh et al., 2011; Ivbijaro, 2012; Ajith, 2015; Ibrahim et al., 2015; Majebi, 2017; Eseigbe, 2021; AGIS, 2023; FCDA, 2023) on urban planning and urban green spaces have been conducted. However, it does not seem that any of these studies investigated the challenges and sustainability of urban open and green space facilities, especially in the context of a Nigerian destination. Thus, this study examines the challenges and sustainability of urban open and green space facilities in the metropolitan areas of the NFCT, Abuja. Thus, the study seeks to provide answers to the following questions: (a) What are the challenges associated with urban open and green space management? (b) What are the benefits of urban open and green space management on human well-being? (c) What are the environmental impacts on the sustainability of urban open and green space management on humans and the environment? The choice of the Abuja metropolitan area was pre-determined by a combination of factors such as (a) hub city, serving as coordinating administrative, economic, political, and cultural activities of the nation (b) high level of socio-economic activities (c) high influx of international and local visitors (d) being the fastest growing economy in Africa, (e) availability of scenic and green open environments for recreation and tourism development, and (f) substantial level of safety and security when compared to other parts of Nigeria. These factors necessitate the choice of Abuja as the appropriate site for the study.

Conceptual Issues

Physical Planning, Environment, and Challenges

Urban areas need to be planned to curtail the challenges of crime, congestion, crowdedness, and environmental degradation and provide places for recreation, tourism, and hospitality ventures. Physical planning and environment are concerned with the spatial arrangement (organization) of urban land use to create a functionally efficient and aesthetically pleasing physical environment for living, work, circulation, and recreation. In this context, urban planners and other key stakeholders need wisdom and interest to determine the essence of planning and modifying their complex environment to accommodate the activities associated with urban green spaces ancillary facilities, and services. The effort of a variety of stakeholders, including host communities in physical planning for the accessibility of UGS can

help to enhance the well-being of human health, aesthetics, and sustainability of their environment and attraction of tourism development. In addition, it can help to minimize some nuisances, including the threat of pollution, congestion, crowdedness, housing, and indiscriminate waste disposal, unplanned growth in urban areas of cities such as Abuja (Mabogunje, 1999; Ojeifo, 2005; Ujoh et al., 2011; Ivbijaro, 2012; Cyril & Olumide, 2016; Agbebaku, 2019; Ezenagu et al., 2019; Eseigbe, 2021; Rayleigh, 2021).

Models of Urban Land Use Planning

According to some studies (Ibrahim et al., 2015; Obiadi & Onochie, 2018; Eseigbe, 2021), urban lands use planning models such as the Concentric Zone Model, Sector Model, Multiple Nuclei Model, Peripheral Model, Urban Realms Model, Transport Technology/Intraurban Model, White's 21st-Century Model, and Urban Development Model concern the growth and development of towns and cities. These models describe how the development of towns and cities extends radially from the core centers and expands outwardly to peripheral zones. There has been a need for refining and reviewing the urban land use planning paradigms to address urban challenges (e.g., the concentration/congestion of activities at the center) associated with them. Consequently, Burges's (1925) model of the Concentric Ring Theory connotes that there would be a need for effective planning of the land use pattern for the essentials of urbanization, housing, transportation, and an increase in the human population for man's comforts and sustainability (Mabogunje, 1999; Ojeifo. 2005; Ibrahim et al, 2015; Obiadi & Onochie, 2018).

Urban Green Space Management

Green belt areas are associated with urban space. UGS are places of encounter within metropolitan areas that facilitate political mobilization, stimulate actions, recreational events, tourism, and hospitality, and help prevent crime (ACB Consulting Services, 2021). The UGS environments stimulate interaction and exchange of ideas that influence the quality of human well-being within the urban environment. According to Obiadi & Onochie (2018), and Ezenagu et al. (2019), the components of urban space include size, shape, scale, density, land use, building types, urban block layout, and distribution of green space. In this context, public urban space management includes marketplaces, city squares, parks, civic buildings, even sidewalks and streets, and transport hubs. These are areas that have been designated from inception for beautification, greenification, and establishment of parks and gardens for recreational activities that will add value to human life and enhance the quality of the environment. This is in terms of clean land and conservation of fauna and flora of the immediate environment. Green areas are strictly reserved as recreational parks and gardens. They are professionally landscaped with grass and flora to retain their natural splendor and are devoid of disruption of the ecosystem. Government authorities in some destinations allow private developers with a guarantee of a high standard of maintenance to manage urban spaces or parks and are provided licenses for this purpose. The proper management of UGS by designated agencies/private sector stakeholders is especially important to enhance a clean and healthy environment, devoid of noise, pollution, traffic jams, congestion, filth, and dirt

(Mabogunje, 1999; Ojeifo. 2005; Cyril & Olumide, 2016; Clement, 2016; Obiadi & Onochie, 2018; Ezenagu et al., 2019; Eseigbe, 2021; Rayleigh, 2021).

Environmental and Sustainable Development

According to some studies (Ojeifo, 2005; Mishra, 2008; Eseigbe, 2021), the universal drives for the concept of environmental and sustainable development are concerned with (a) respect and care for community life (b) improving the quality of human life (c) conserving the earth's vitality, and diversity (d) minimize the depletion of non-renewable resources (e) change personal attitude and practice (f) enable the community to manage and care for their environment (g) keeping within the earth's carrying capacity, (h) provision of a national framework for integrating development and conservation, and (i) creating a global alliance. In the same vein, the concept of sustainable development seeks to reconcile human needs and the capacity of the environment to cope with the consequences of the economic system. Extant studies (e.g., Ojeifo, 2005; Paul & Steven, 2010; Ivbijaro, 2012: Agbebaku, 2019; Eseigbe, 2021) have been conducted to further establish the importance of sustainable development and suggested measures towards sustaining best practices. It, therefore, behooves individuals, industrialists, communities, and government agencies to consider all aspects of their urban developmental proposals and ensure that they conform to their destination realities and best environmental practices. This measure helps to minimize and maximize the use of natural resources and urban green space for the benefit of human well-being and the sustainability of the environment they live in. It is important to note that, the concept of the 4^{rs} implementation of the sustainable development goal of resource utilization from solid waste such as recycling, reuse, reduction, and restoration, mandates planners, environmentalists, engineers, scientists, and other stakeholders to identify the ideal location and development of UGS with technologies for efficient, productive, and profitable recreation services that helps to boast human well-being and sustainability of the environment (Paul and Steven, 2010; Ibrahim et al, 2015: Agbebaku, 2019; Eseigbe, 2021).

Recreation and Tourism Land Uses

The concept of recreation and tourism is concerned with human psychological and emotional well-being. Recreation and tourism land uses are synonymous as both are aimed at spatial locations meant for relaxation, pleasure, entertainment, or business. Recreation land use is the land use where individuals or groups can engage in relaxation or pleasurable activities during their leisure or free time and does not include work and social obligations such as washing, cooking, or sleeping. On the other hand, tourism land use is described as a place where individuals or groups can engage in relaxation or pleasurable or business activities. This involves a person traveling from their usual place of residence to a destination outside theirs' over some distance and duration not less than 24 hours, and not more than one consecutive year, for leisure, business, holiday, and other activities that are not economically based. There is no gainsaying the fact that recreational parks and gardens serve as places within

neighborhoods for people, including tourists and residents to relax, engage in entertainment activities, socialize, and leisure activities and help to create harmony within the built environment (Majebi, 2017; AGIS, 2022). Figures 1 to 4 and Plate 1 show maps of land use plans, images, designs, and green belt areas in the metropolitan area of Abuja, Nigeria's federal capital city.

Fig 1: GIS Satellite Image, Built-up and Green Belt Areas within the Abuja Metropolitan Center.



Source: Abuja Geographical Information System, Google Map, 2023.

Fig 2: Cadastral Map of Green Space Management in Wuse 11 District Area, NFCT, Abuja.



Source: Abuja Geographical Information System, 2023

Fig 3: Review and Redesign of Abuja Master Plan and Development of a New Satellite Town



Source: Abuja Geographical Information System, Open Access Resources, Google Map, 2022.

Fig 4: A Glimpse of Urban Open and Green Space Management in Wuse 11, NFCT, Abuja



Source: Open Access Resources, Abuja Geographical Information System, Google Map, 2023

Plate 1: Aerial View of a Physically Planned Urban Center and Space Management in NFCT, Abuja.



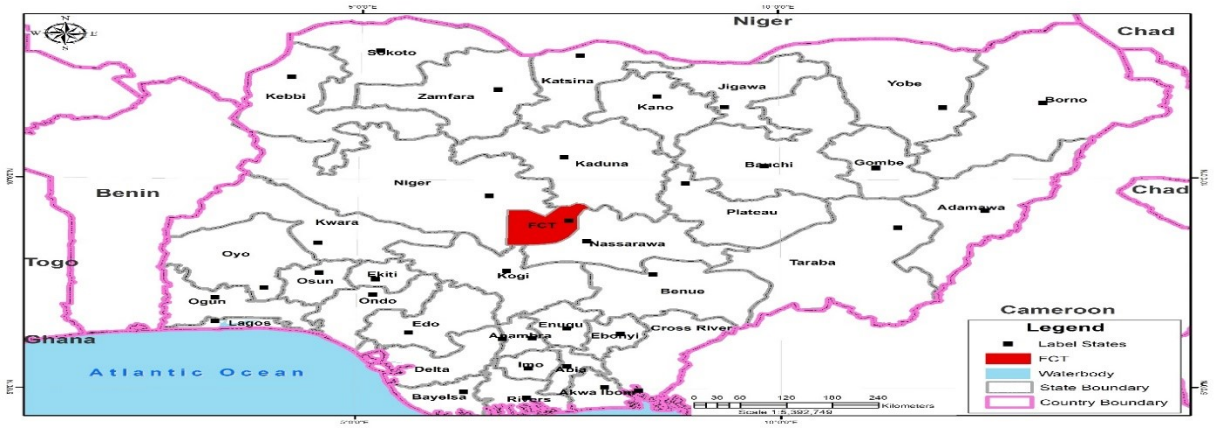
Source: Open Access Resources, Abuja Geographical Information System, Google Map, 2023.

Materials and Methods

Study Area

Nigeria's Federal Capital Territory (NFCT), Abuja is the study area for this research. The city of Abuja lies within Latitude 7^0 25^1 N and 9^0 20^1 North of the Equator and Longitude 6^0 45^1E and 7^0 39^1 East. The territory covers an area of about 8,000 square kilometers (FCDA, 2022). The NFCT was carved out of Niger, Plateau, and Kogi States of Nigeria on 01 December 1991. Niger State contributed the largest proportion to the NFCT, accounting for 6,738 square kilometers (84.2%), Plateau State contributed 903.8 square kilometers, (11.3%) and Kogi State contributed 0.5%, i.e., 358.2 square kilometers (Cyril & Olumide, 2016). Abuja, NFCT is centrally located and easily accessible from all parts of the country (see Figure 5).

Figure 5: Map of Nigeria Showing Federal Capital Territory, Abuja.



Source: GIS and Cartography Unit, LASU (2022).

Within the national context, Abuja is in the middle belt region. The NFCT is bounded to the North by Kaduna State, Nassarawa State to the East and Southeast, Southwest by Kogi State, and to the West by Niger State. Abuja's city center revolves around the Central Business Districts (CBD). The CBD is the hub of both the city and the nation, and the seat of government. The other districts around the city are meant for residential development for both public and private developers.

The Master Plan of Abuja, NFCT was projected to accommodate an estimated population of 157,750 persons in residence on its inauguration in 1986, 485,660 persons in 1990, 1,005,800 persons in 1995, 1,642,100 persons in 2000, and with a projection of over 10,300, 200 persons in 2025 (FCDA, 2022). The area is associated with varied landforms of mountains, plateaus, and plains with various degrees of socio-economic activities. The area has an average temperature of 25.1^C and an average rainfall of 1871mm per annum. The study area has many small, medium, and large-scale primary, secondary, and tertiary socio-economic facilities, activities, and services. These include administrative, political, legislative, commerce, health

care, transport, recreational, educational, and religious establishments, owing to the high influx of human population from within and outside the nation. Thus, there is a need for effective physical planning to accommodate these essential services and nature-like recreational facilities, including, open spaces and gardens, leisure, and recreation resource centers, and areas of outstanding natural beauty. Outstanding areas of beauty within the NFCT, Abuja include water areas, river valleys, hills, mountains, lakes, oceans, and bays for public use and the comfort of residents and visitors and for a balanced ecosystem. The management of these facilities, including urban green spaces within the study sites can help to ease human stress, reduction in congestion, and air/noise pollution, associated with human-related activities. In addition, the facilities in the Abuja metropolitan area when properly managed, can help to promote aesthetics, a healthy, conducive environment for recreational activities, tourism development, and environmental sustainability.

Research Methods

Data for this study were derived from both primary and secondary sources. Primary data were collected within the metropolitan of Abuja, NFCT through questionnaire administration and granted interviews. Other sources of information employed for the study include data on the study sites' population which were obtained from the National Population Commission (NPC), Abuja. Data on the administration of urban space management were sourced from the FCDA and AGIS. Data on facilities and services of urban open and green space management were sourced from service operators. Data on the socio-economic activities of clients were sourced from a combination of sources, including (a) service operators, clients, FCDA, FCT authorities, and AGIS. Data on the map (s) of the study sites were sourced from the office of AGIS, FCDA, Ministry of Land and Survey, Abuja. On the other hand, secondary data were sourced from documentary materials including, academic journals, conference papers, theses, textbooks, maps, and plates.

To determine the population size for primary data collection, sample frame, sample population, and questionnaire administration, the spatial locations, variance in facilities, and differential in respondents' information constituted the sample size of the study area. A total of seventy-two (72) copies of questionnaires were designed and administered to 6 selected major service providers and clients of the urban open space and green belt areas within the Abuja metropolitan area. This was to derive firsthand information about their facilities, services, operations, and patronage. Of the total number of 72 copies of questionnaires administered, 12 copies were administered to each of the 6 selected service providers and operators of the facilities on a ratio of 6/12. That is, 12 copies of the questionnaires were administered to staff members of each of the 6 service providers. The staff members who completed the questionnaires and consented to the interviews include the manager, supervisor/foreman, and environmental attendants at each facility and service center.

The 60 copies of the questionnaires were administered to clients in six phases over a period of 2 days. For the first phase, 12 copies of the questionnaires were administered in the morning, between the hours of 9 a.m. to 1 p.m. For the second phase, another set of 12 copies was administered in the afternoon, between the hours of 1 p.m. to 5 p.m. For the final phase, the remaining set of 12 copies of the questionnaires were administered in the evening, between the hours of 6 p.m. to 10 p.m. Each copy of the questionnaire was administered at an interval of 20 minutes, within a period of 2 days. This was inclusive of a weekend (Saturday and Sunday) when there was a high level of patronage recorded at the study facilities. At the end of the questionnaire administration and validation, only 60 completed questionnaires were valid. The choice of the selected facilities and service providers for the administration of the questionnaire was characterized by a combination of factors. This includes (a) non-compliance with the Land Use Act on recreational facilities (b) geographical location across the city center (c) level of patronage, (d) level of facility and services rendered (e) aesthesis and environmentally friendliness (f) space management (g) scenic landscapes (h) area of outstanding natural beauty, and (i) proximity of facilities and security. To achieve this, 60% of the selected recreational centers that constitute the major service providers for these facilities and services were randomly selected for the study. These facilities and service centers were spatially distributed within the Garki 1 and 11, and Wuse 1 and 11 districts of the NFCT metropolitan area. The selected facilities and services in the study areas can be classified into urban green belts and recreational parks. Six (6) selected facilities were used for this study, comprising the urban open and green belt areas. These are the Abuja Millennium Park and the National Arboretum and Botanical Garden located in Garki. These open spaces cover an area of 50 to 100 hectares. The other 3 facilities for the study are recreational parks and services. They are the Nelson Nuke Garden, Garki, River Parks and Garden, Wuse 11, and the Park View and Garden, Wuse 11, FCT Abuja. Data from the secondary and primary sources were analyzed using the appropriate descriptive and inferential statistical techniques. The consent of the respondents, especially the operators of the UGS facilities was sought to complement the quantitative data collected, but they all declined to participate in the proposed interview for personal reasons. Thus, only quantitative methods were adapted for the study, and figures, plates, and tables were used for the descriptive analysis of the data generated from the study.

Results

The results from the questionnaires administered identified the challenges and sustainability of urban open and green space facilities for recreation in the metropolitan areas of Abuja, NFCT. It also identified the benefits and environmental impact of urban open spaces on human well-being in the NFCT as summarized and presented in Tables 1 to 3, respectively. The results are presented based on the findings from the research questions: Table 1- (a) What are the challenges associated with urban open and green space management? Table 2- (b) What are the benefits of urban open and green space management for human well-being? Table 3-(c) What are the environmental impacts on the sustainability of urban open and green space management on humans and the environment?

Table 1: Challenges of Urban Open and Green Space Management on the Environment

Variables	Frequency	Percent (%)
High Rate of Illegal Land Use and Land Use Violation	06	10.0
Difficult to Measure Urban Open Green Spaces Are Used	11	18.3
Perception of Human Attitude	04	6.7
Non-Compliance to Land Use of Recreational Facilities	05	8.3
Assessment of the Financial Positive of Urban Open Green Space	02	3.3
Need to Provide Urban Mobility to Urban Open Green Spa ces Area	06	10.0
The Barrier of Distance and Security	11	18.3
Moderate Patronage from Inflation and Rising Cost of Facilities and Services	15	25.0
Total	60	100

Source: Fieldwork, 2023.

Table 1 shows responses to the challenges of urban open and green space management on the environment. It was revealed that responses from service operators on moderate patronage from inflation and the rising cost of facilities and services got the highest counts of 15 which represents 25% of the responses. This was followed by responses on the difficult-to-measure urban open green Spaces how are used and barriers of distance and security which resulted in 11 counts (18.3%) each. This is followed by the responses on the High Rate of Illegal Land Use and Land Use Violation and the Need to Provide Urban Mobility to Urban Open Green Spaces Areas with 6 counts (10%) each. Furthermore, responses on the Non-Compliance to Land Use of Recreational Facilities resulted in 5 counts (8.3%), while responses on human attitude resulted in 4 counts (6.7%). The least responses were 2 counts (3.3%). These results show that the operators and service providers within the Abuja metropolitan area are being confronted with a combination of one or more of the challenges mentioned. Specifically, the findings of this study show that there are illegal land use changes, violations of land use, illegal development, and encroachment. It also reveals that recreational facilities are commonly used by squatters within the city. This can discourage recreational activities at the UGS.

Table 2 : Benefits of Urban Open and Green Space Management on Human Well-Being.

Variables	Frequency	Percent (%)
Improving Our Day-To-Day Lives and Health.	13	21.7
Promoting Peace and Relaxation.	11	18.3
Improving Air Quality and reducing premature Mortality.	05	08.3
Moderating Temperatures During Hot Periods.	12	20.0
Providing Cool and Shaded Areas for recreation activities.	03	05.0
Protecting and Enhancing Safe Environment.	10	16.7
Reducing Noise Pollution.	06	10.0
Total	**60**	**100**

Source: Fieldwork, 2023.

Table 2 shows responses on the benefits of urban open and green space management on human health. From the Table, it was revealed that responses on improving our day-to-day lives and human health have the highest counts of 13 (21.7%). This is followed by responses on Moderating Temperatures during hot periods which resulted in 12 (20%) counts. This was followed by responses associated with Promoting Peace and Relaxation which resulted in 11 (18.3%) counts. The combined responses on Reducing Noise Pollution, Improving Air Quality, and reducing premature Mortality resulted in a total of 11 (18.3%) counts, while responses on Protecting and Enhancing Safe Environment resulted in 10 (16.7) counts. Providing Cool and Shaded Areas for recreation activities accounted for the least responses with only 3 (05%) counts. These results show that the UGS facilities and services are beneficial to the respondents. This is because the facilities help to provide opportunities for relaxation and improvement of the respondents' mental health and general physical well-being, owing to the scenic nature of the locations of the environment.

Table 3: Environmental Impacts and Sustainability of Urban Open and Green Space Management on Human and Environment

Variables	Frequency	Percent (%)
Positively Influence Human Health.	15	25.0
Promote Noise Pollution and Environmental ill-Quality.	08	13.3
Environmental Degradation	11	18.3
Land Excavation.	04	06.7
Loss of Biodiversity and Attraction of Insects	02	03.3
Enhances Relationships, Attractiveness and Giving Enabling Environment	07	11.7
Balance the Health, Environmental, and Economic Needs of Our Communities for Sustainability	13	21.7
Total	**60**	**100**

Source: Fieldwork, 2023.

Table 3 shows responses on the environmental impacts and sustainability of urban open and green space management on humans and the environment. The study revealed that responses on Positively Influence Human Health got the highest counts of 15 (25%). This was followed by responses on balancing the Health, Environmental, and Economic Needs of Our Communities for Sustainability which resulted in 13 counts (21.7%). The responses on Environmental Degradation resulted in 11 counts (18.3%). This is followed by responses on Promote Noise Pollution and Environmental ill-Quality and Enhances Relationships, Attractiveness, and Giving Enabling Environment which represent 8 (13.3%) counts for the former and 7 (11.7%) counts for the latter. Responses on land excavation and Loss of biodiversity attraction of insects recorded the least responses, resulting in 6 counts (9%) of the total responses. These results show that there is a correlation between the impacts of the UGS facilities and services on human health and the need to sustain these facilities and services on their well-being, aesthetics, and friendliness of the physical and human environment.

Discussion of Findings

Although this study focuses on the challenges and sustainability of urban open and green space facilities for recreation and tourism, the findings are consistent with existing studies (e.g., Mabogunje, 1999, Cyril & Olumide, 2016; Ezenagu et al., 2019; Eseigbe, 2021, Majebi et al., 2023) which found that open green spaces are essential for recreation/tourism and environmental sustainability. This is despite some variable challenges, inflation, and the rising cost of facilities services management at the study sites. Nonetheless, the research provides answers to the research questions, achieves the study's objectives, especially in the context of the metropolitan area of Abuja, and contributes to the existing literature on urban green space management.

To answer Question 1: What are the challenges associated with urban open and green space management? The study findings revealed that the challenges of UGS on the environment are enormous. These challenges vary, including the perception of humans, illegal land use changes, violations of land use, illegal development, and encroachment. Nonetheless, the study reveals that recreational facilities are commonly used by residents, visitors/tourists, and squatters within the city. These findings are consistent with the study of Onokerhoraye (1984), as cited in Ajith (2015), ACB Consulting Services (2021) and Majebi et al. (2023).

To answer Question 2: What are the benefits of urban open and green space management on human well-being? The study findings revealed that the UGS facilities and services are beneficial to humans, including their mental and physical well-being. The study finds that the services being provided by the UGS help to ensure a peaceful and relaxed venue for visitors/visitors and residents and for the protection of the environment. These are also consistent with the findings of Mabogunje's (1999) study, as cited in Cyril and Olumide (2016), Ezenagu et al (2019), Eseigbe (2021), and Majebi et al. (2023).

To answer Question 3: What are the environmental impacts on the sustainability of urban open and green space management on humans and the environment? The study findings revealed that environmental impacts and sustainability of UGS on humans and the environment enhance the well-being of human health and aesthetics of the environment of the metropolitan area of Abuja, NFCT. These are in terms of environmental quality (clean air and land), environmental aesthetics and friendliness, urban space management, and scenic landscapes owing to the topography of the study site. These findings are consistent with the findings of Agbebaku's (2019) study, as cited in Eseigbe (2021) ACB Consulting Services (2021), and Majebi et al. (2023).

Conclusion and Recommendations

This study reveals that the challenges confronting urban green and open spaces include inflation and the cost of facilities management. Despite this, the study findings reveal that environmental impacts and sustainability of facilities and services had a significant impact on the well-being of human health and the aesthetics of the environment. The improvement in human health is a major benefit of urban green spaces and accompanying facilities. The urban green spaces facilities and services help to improve our day-to-day lives in the environment where we reside, work, and engage in recreational and tourism activities. They help to enhance human health, boost human mental and physical well-being, improve air quality, reduce premature mortality, enhance biodiversity, provide cool and shaded areas, spark youth's interest in tourism and hospitality ventures, and the reduction in noise pollution. For the sustainability of the urban green spaces, the trend of development of recreational and tourism facilities in the Abuja metropolitan areas of the NFCT should be in line with the Abuja Master Plan and global standards and best practices. Observably, recreational facilities and services are cost-effective both in space acquisition and service delivery and can help to encourage peoples' participation in recreational/tourism activities and enhance environmental sustainability in the study sites.

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