SPATIAL CHARACTERISTICS OF PUBLIC ACTIVE RECREATIONAL FACILITIES IN UYO URBAN, AKWA IBOM STATE, NIGERIA

Abstract

In recent times there has been increasing use of active recreational facilities in urban centers the world over. However, in Nigeria, patronage is hindered by their location and distribution. The study aimed to assess the spatial characteristics of active recreational facilities in Uyo urban, Akwa Ibom State. Empirical and exploratory methods were employed. Questionnaire was administered and field observations were conducted to gather data for analysis. A random sampling technique was used to determine a total sample size of 400 for questionnaire distribution. There were 8 active recreational facilities within the study area whose locations and pattern were determined using the Nearest Neighbourhood Analysis technique. The study revealed that characteristically, the active recreational facilities were located dispersed, which was a pointer to a lack of order and planning in their location. Based on the findings, it is recommended that; more active recreational facilities should be provided, optimally and equidistantly located to enhance usage.

Keywords: Location, distribution, public, active, recreational, facilities

1.0 Introduction

Urban areas function as places where the population is concentrated in a defined area, and economic activities are located in them to provide opportunities for producing and consuming goods and services (Hall and Page, 2006). Consequently, urban areas provide the context for a diverse range of social, cultural and economic activities which the population engages, and where tourism, leisure and entertainment form major service activities (Meeras, 2010).

In line with this assertion, Kohl *et al.* (2012) opined that lately, considerable attention has been given to promoting a more active lifestyle since a sedentary lifestyle is more prevalent globally and it is associated with numerous health challenges. This opinion is corroborated by Lee *et al.* (2014). Attention began to be seriously paid to recreation by environmental planners from the mid-1950s onwards (Bucher and Bucher, 1974). Public interest in recreational activities has heightened significantly around the world especially since the end of the nineteenth century (Coalter, 1996; Roberts, 1996; UN-ECE/FAO, 2000; Merom *et al.*, 2006). Following this, Kara and Demirci (2009)

attributed this hike in recreation to the increase in free time and welfare in nations among all the other complex interrelated factors. The amount of leisure time has increased with the spread of the 2-day weekend and reduction in working hours. Accompanying increases in income and living standards have allowed many people to spend time on different outdoor

activities. Today, having more free time and income more people are participating in various outdoor recreational activities.

Accordingly, Ajani (2014) asserted that three fundamental aspects on one's life, when taken together encompass the staples of our existence. From the western perspective, work, family, and leisure or recreation represent these three pillars of life. All of which demand a balanced portion of our time. Recreation is not restricted to any particular age group and activity (Gulam, 2016). Productively, Timperio *et al.* (2009) observed that these days, recreation constitutes a major force in international, national and local economies and is responsible for millions of jobs.

According to Gulam (2016), recreation portrays different meanings to different people and is applied to various activities. Recreation is an organized and desirable social activity that is free which one engages in during spare time voluntarily just for fun or pleasure (Meeras, 2010; Ajani, 2014; Maginsay, 2020). It can also be said to be the restoration of the human's ability to function (Agbabiaka *et al.*, 2020). Recreation may be active or passive, indoor or outdoor (Lawson and Baud-Bovy, 1977). One must therefore choose between passive or active recreational activities which bring the most level of satisfaction to him (Ajani, 2014). Ajani (2014) further noted that lately, more credence had been placed on active recreation as a part of social activities, which helps improve people's quality of life through physical and emotional vitality. Patmore (1983); Veal (2004); Anaza (2017) and Agbabiaka *et al.* (2020) opined that outdoor recreational activities are known as active recreation which is a structured individual or team activity that requires the use of special facilities, courses, fields or equipment that can provide communities with opportunities to participate in sports like baseball, football, soccer, golf, hockey, tennis, skiing, and skateboarding which could be competitive or non-competitive in nature,

Timperio *et al.* (2009) noted that for some, recreation relates to the network of public agencies that provide such facilities as playgrounds, parks, aquatic centres, sport fields and community centres in urban areas. Wang *et al.* (2013) opined that community facilities provided by the government, like leisure and recreational centres are key settings for improving general health and quality of life and enhancing social support through connecting communities. Physically, Agbabiaka, *et al.* (2020) noted that recreational facilities are improvements projects designed for personal exercise and sport. Developing these facilities requires installing hard surfaces or structural improvements that modify the natural

environment. Recreation facilities are the physical assets that accommodate recreation activities. They can be natural or built assets which are specifically provided and managed for recreational purposes or they may be assets which fulfill some other primary roles and which are occasionally used for recreation (Gani, 2018).

Recreational facilities are spatially located and distributed in different land uses such as residential, commercial, institutional, and industrial. Huhtala and Pouta (2009) stated that the potential need and difficulty of public provision of recreation opportunities make it imperative to study how recreational facility distribution would be relevant to communities. According to Ries et al. (2011), when recreational facilities are available in a particular area, there is a resultant increase in the participation level of residents in that area.

On the basis of the above highlights, the aim of this paper is to assess the spatial characteristics of active recreational facilities in Uyo urban area, Akwa Ibom State, Nigeria. To achieve this aim the location and distribution pattern of active recreational facilities in the study area will be investigated.

2.0 Research Problem

Over time, Uyo urban has witnessed a growing interest in participation in active recreational activities because of their known importance like improvement of physical, mental and social health of individuals. This interest is not marched with equal actions and studies to plan, provide; and manage the existing active recreational facilities in Uyo urban. The success of active recreational facilities could be measured in terms of utility based on their spatial location and distribution pattern. It is perceived that active recreational facilities are not successful as they may not attract high patronage from the inhabitants of the study area.

Several studies have suggested that though the availability of active recreational facilities increases the chances of public participation in recreational activities but may not be sufficient to significantly improve the level of participation (Kara and Demirci, 2009). The low level of patronage of active recreation facilities in Uyo urban may be as a result of their improper location and uneven distribution to meet the recreation needs.

3.0 Study Area

The study area is Uyo urban, the capital city of Akwa Ibom State. It is located between latitudes 4^0 53' and 5^0 04' north of the equator and longitudes 7^0 48' and 8^0 02' east of the Greenwich Meridian as shown in Figure1. It is bordered on the north by Itu, Ikono and Ibiono

Ibom Local Government Areas (LGAs), on the south, by Etinan, Nsit Ibom and Ibesikpo Asutan LGAs, on the east by Uruan LGA, and the west by Abak LGA.

Uyo urban falls within the sub-equatorial climate belt with a mean annual rainfall of about 2500mm (University of Uyo Metrological Station, 2021). According to Meteoblue (2017), it is characterized by a tropical humid climate without distinct seasonal variation. The rainy season usually begins from March to November, with violent storms between March and May. This is why the study area is characterized by heavy flooding. The relative humidity is usually within the average of 70 and 80 percent throughout the year except for the short dry period of Harmattan. The monthly average temperature is between 26°C and 28°C (AKSG, 1989). The hottest months are February and March with 28.5^0C while the coolest months are August (25.4^0C) and September with 25.7^0C. These physical characteristics have significant impacts on recreation development and participation in the study area.

Uyo urban was said to have 244,762 people. The 2006 census figure stood at 309,573 persons (NPC: Uyo, 2006). For the purpose of this study, the population of the study area was projected from the census figure of 2006 using the national urban growth rate of 3.5%. Therefore, in determining the current population, the exponential formula is used:

$P^t = P^0 (1+r)^n$ - - - - - - Equation 1

Where: P^t = future population of the study area (2021); P^o =the present population (309,573); r= National growth rate 3.5%; ^{n} = the difference in the year between the present and future period (2006 to 2022).

And

$Pt = 309,573 \ (1+3.5/100)^{16}$

$Pt = 309,573 \ (1.035)^{16}$

$Pt = 309,573 \times 1.79$

$Pt = 554,135$

Therefore, the study area has a projected population of 554,135 persons in 2022.

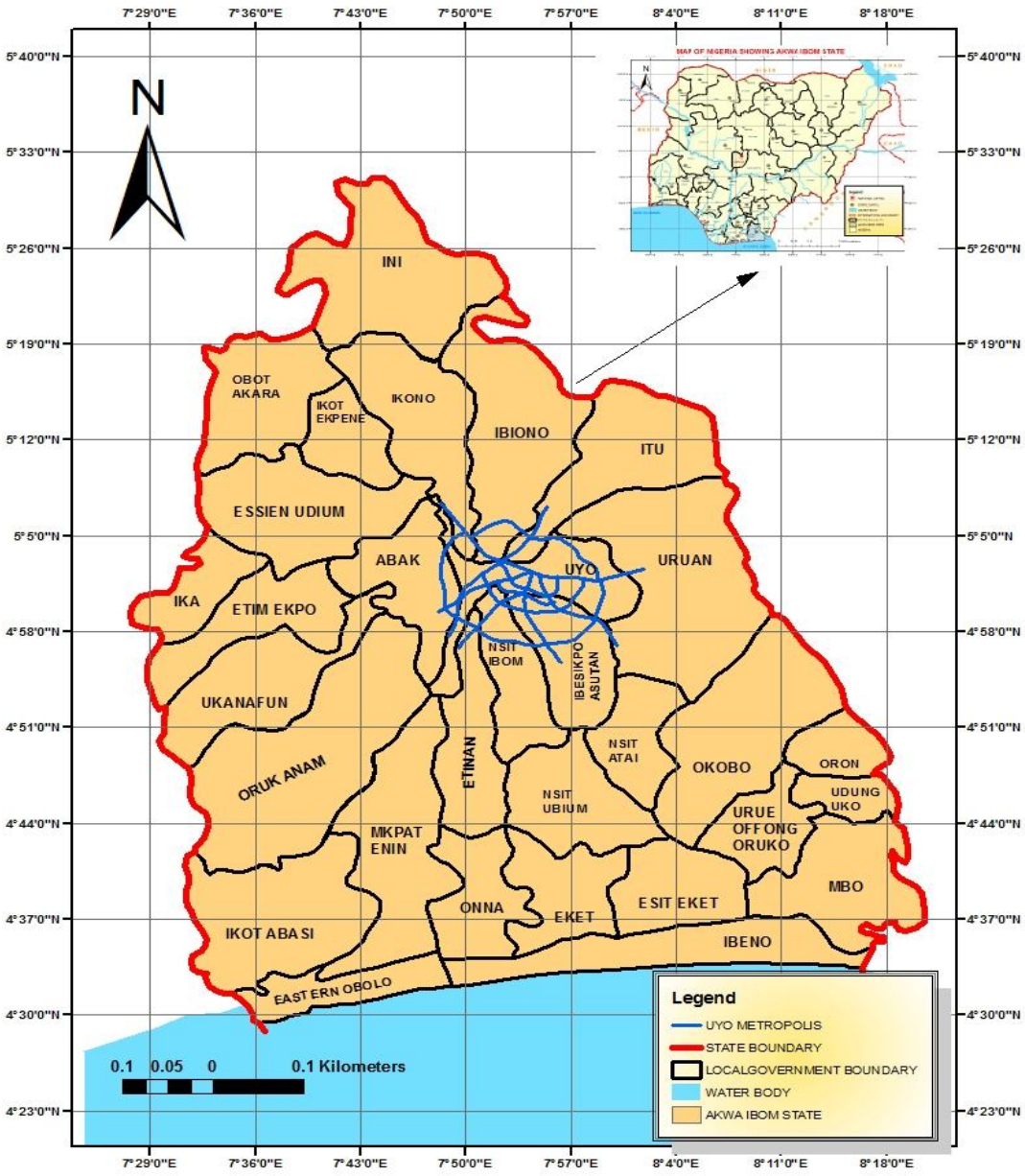

Figure 1: Map of Akwa Ibom State showing Uyo Urban Area
Source: ArcGis Software (2022)

4.0 Literature Review

A research conducted by Sallis (2009) demonstrated that physical activity is usually done in specific types of places, referred to as physical activity environments. These include parks, trails, fitness centres, schools, and streets. In recent years, scientific interest has increased notably in measuring physical activity environments. Kara and Demirci (2009) revealed that

the outdoor recreational areas in Istanbul were far behind meeting the recreational needs of the residents in terms of area per person and facility characteristics. They further stated that the majority of outdoor recreational areas in Istanbul were poor in a facility. The majority of the existing outdoor recreational areas are small and do not provide the public with many opportunities to engage in different outdoor activities. Lee *et al.* (2014) stated that the characteristics of recreational facilities are determinants of facility use and physical activity, yet there are few validated and extensive audit tools gauging characteristics of recreational facilities.

Herbert *et al.* (2017) opined that both the younger and older generations are increasingly aware of the benefits of physical activity, because it makes them feel healthier, relaxed and stronger when facing everyday challenges. Based on the foregoing, numerous sports and recreation facilities have become destinations not only for business people and managers but just about anybody looking to improve one's fitness and health, including students, elderly and the unemployed. Ries *et al.* (2011) opined that recreational facilities availability has been shown to correlate positively with youth physical activity levels. It revealed that adolescents were more likely to use public than private facilities despite perceiving that private facilities were of higher quality. From their study, one can conclude that the provision of public facilities is very vital as it encourages physical activities of urban youth. Wash and Badaruddin (2019) provided a review on the place of recreational facilities and their role as an integral part of a livable city.

Overtime in Nigeria, several studies have been carried out on recreational facilities. For instance, Gani (2018) studied the provision of recreational facilities in Asokoro District, Abuja, Nigeria. He stated that recreation is an activity of leisure, leisure being discretionary time. The aim of the study was to review the provisions of recreational facilities in Asokoro District to make appropriate planning recommendations. From the study, the major problems facing recreation in the area included encroachment by other land uses, long distances, inadequacy and poor maintenance of the recreational facilities. Based on the findings it was recommended that more facilities be provided in accordance with planning standards and also space allocated for the development of recreational facilities in the district and should be protected by planning laws and regulations.

Atare and Ekpu (2014) examined the status of recreation facilities in health promoting tertiary institutions in Akwa Ibom State, Nigeria. The study recommended among others that the provision of recreation facilities in health promoting tertiary institutions required

uncommon transformation. Agbabiaka (2020) examined the attitude toward recreation: a case study of Nigerian academic staff in public institutions. The outcome of this study contributed immensely to evolving policies that could create inclusiveness among staff members in tertiary institutions irrespective of their ages, socio-cultural, economic and intellectual status, through active participation in recreational activities.

James *et al.* (2020) examined the recreational behaviour and preference of urban residents in Ikot Ekpene town as well as the recreational constraints in the area. They concluded that there was need to inaugurate community policing in order to strengthen security at recreational centres as well as enhance access to recreation through citizens empowerment, infrastructure upgrade and expanding facilities for outdoor recreation.

Active recreational facilities are spatially distributed in different land uses and possess certain features to including: i) Size which vary in area and capacity, most of them may be small (accommodating few equipment for users) or big in size. Kara *et al.* (2009) opined that the amount of land which is dedicated to recreational activities is one of the most significant indicators to determine whether outdoor recreational areas are adequate for the residents in cities. Several other authors agree that having enough recreational areas in cities increases public participation in recreational activities (McIntyre and Pigram, 1992; Torkildsen, 1999; Curry and Ravenscroft, 2001; Yilmaz *et al.*, 2007). The amount of recreational areas per person varies from city to city in the worldwide. For example, it is $33m^2$ in Ottawa, $22m^2$ in Vancouver, and $16m^2$ in Hamburg. According to the American standards which is used in the State of Indiana, recreational areas per person should not be less than $8m^2$ in order to meet the recreational needs of the residents in cities (DNR, 2006).

For optimal location, Umar *et al.* (2015) reiterated the importance of sitting facilities at optimal location as facilities location is indeed an important aspect of man's activity either as an individual, group, community, private sector or the entire public. The optimal location of public facilities in any geographical area determines the level of orderliness, effective use and ease of accessing such facilities. Determining the optimum location of facilities can be a very complicated task due to lack of effective planning coupled with the organic development of major towns and cities. Facilities provisions are always an afterthought event to ameliorate the obvious lack of such facilities.

Wash and Badaruddin (2019) noted that recreation and sport facilities should be within a trek able range and easily accessible at close proximity to all and encourage participation of people whose participation are known to be lower.

4.1Conceptual Framework

The Nearest Neighbourhood Analysis (NNA) concept is used to underpin this research. The concept can be applied to phenomena , that are assumed to be distributed in an isotropic or uniform surface or phenomena that are strongly clustered. The NNA is based on a straight line measurement of the distance separating a phenomenon and the nearest neighbourhood space (Umar *et. al.*, 2015). The concept was originally developed by plant ecologists Clark and Evans in 1954, who was interested in the distribution of various developed plants species over the earth surface (Israel *et. al.*, 2009). The method indicates the degree to which any observed distribution deviates from what may be expected if the distributions of points are random. Phenomena is said to be randomly distributed if they satisfy the following conditions:

i. Any part in the area has the same chance of occurring in any sub-area like any other point.

ii. Any sub-area of specified size has the same chance of receiving a point as any sub-area of that size.

iii. The placement on the location of each point is not influenced by any other point.

Therefore, Nearest Neighbourhood Analysis by definition produces a figure (expressed as Rn), which measures the extent to which a particular pattern is clustered (nucleated), random or regular (uniform). The formula for the Nearest Neighbourhood Analysis is expressed as;

$Rn = 2đ\sqrt{n/a}$ - - - - - - - Equation 3

Where: Rn = description of distribution; Đ= the mean distance between the nearest neighbours (km); A = area under study (Square meter); N = total number of points.

Furthermore, Rn (the nearest neighbourhood index) measures the extent to which the pattern is clustered, random or regular when Clustered: Rn = 0 all the dots are close to the same point; Random: Rn = 1.0 there is no pattern; and Regular: Rn = 2.15: there is a perfectly uniform pattern where each dot is equidistant from its neighbours. NNA has been applied to a spatial dimension by several scholars.

4.2 Gap in Literature

The reviewed empirical studies focused on the location features of outdoor recreational facilities. Some focused on the benefits of outdoor recreation. In contrast, others focused on the user preference for recreational facilities. Still, this study seeks to assess the spatial location and distribution pattern of active recreational facilities in Uyo urban, Akwa Ibom State, to bridge the existing knowledge gap concerning Nigeria.

5.0 Research Methodology

A survey design that combined empirical and exploratory methods was adopted for the study. The data were sourced from the residents of the study area. The design was structured to examine, organize and analyze data gathered from the field. Structured questionnaire was administered to the randomly sampled population of 400. Observation was structured, with a clear outline of what to look out for in the field.

The population of the study was 554, 135 in 2022 as projected. The sample size is obtained using the Leedy and Ormrod (2005) guideline for sample size selection which estimates that in a population of over 5,000 people, 400 could be taken as sample size. For the purpose of questionnaire administration, 400 copies of the questionnaire were administered to respondents in the study area.

The Uyo Capital City master plan constituted the base map and was converted to the digital format by scanning and geo-referencing processes. The coordinate system set to WGS1984UTMZone32N. Following the digitizing of the base map, the conversion was done from Key Man Desktop file format (KMD) to Keyhole Mark-up Language (KML) file format and super imposition was done to Google Earth Pro for the existing condition of the project site to be captured.

Data collected were analyzed using a descriptive techniques to summarize and describe numerical data in the form of tables, averages, percentages, proportions, rates, index numbers and ratios (Udofia, 2013).

6.0 Presentation, Analysis of Data and Discussion of Findings

This section presents data collected from the field, analysis and discussion of findings.

The questionnaire on the assessment of spatial characteristics of active recreational facilities in Uyo, Akwa Ibom State was administered and distributed in and around the seven (7) active recreational facilities within the study area.

6.1 Location of Active Recreational Facilities within the Study Area

In the study area, eight (8) active recreational facilities were identified during the field survey. Table 1 presents the names, locations, and GPS coordinates of active recreational facilities, while Figure 2 is a map that shows the distribution pattern within the study area.

Table 1: The Location of Active Recreational Facilities within the Study Area

S/N Recreational Facilities	Location	Size (Hectares)	GPS Coordinates
1.Green Field (Playground)	Dominic Utuk Avenue, Uyo	4.5	5.03402; 7.93393
2. Uyo Township Stadium	Akpan Andem, Uyo	1.8	5.03402; 7.93393
3.Godswill Akpabio International Stadium	Atan Offot, Uyo	48	5.00627; 7.88492
4. Ibom Icon Hotel and Golf Resort	Nwaniba Road, Uyo	174	5.03890; 7.88493
5. Ibom Plaza	Plaza, Uyo	0.070	5.03425; 7.92702
6. Unity Park (Christmas Village)	Udo Udoma Avenue	11	5.00813; 7.92656
7.University of Uyo Mini-stadium	Ikpa Road, Uyo	2.1	5.04091; 7.92375
8. West Itam Sport Centre	Itam, Uyo	N/A	5.04715; 7.88696

Source: Field Survey (2022)

Table 2, shows that out of 389 respondents, 155 (39.8%) of the respondents stated that they do not know any active recreational facility available in Uyo urban, 205 (52.7%) stated that they know 1 or 2 active recreational facilities, while 23 (6%) know between 3 to 5 active recreational facilities and only 6 (1.5%) respondents know more than 2 active recreational facilities in the study area. This implies that a large proportion (92.5%) of the respondents either do not know any active recreational facility or know 1 to 2 active recreational facilities. The data presented indicate that majority of the residents are unaware of the existence of many active recreational facilities in the study area. The implication of this is that many people would not be involved in recreation activities which in turn impacts negatively on their health.

Table 2: Knowledge of Active Recreational Facilities Respondents Know

Number of Active Recreational Facilities Respondents know	Frequency	Percentage (%)
None	155	39.8
1-2	205	52.7
3-5	23	6
Above 5	6	1.5
Total	**389**	**100**

Source: Field Survey (2022)

Table 3 shows the responses of respondents on their estimated distances from active recreational facilities. Out of the 389 respondents, 34 (8.7%) reside less than 1km distance

away from the nearest active recreation facility, 41 (10.6%) live between 1 to 2km while 56(14.4%) live between 3 to 5km and 258 (66.3%) lived a distance greater than 5km. This implies that more persons lived farther away from existing facilities. When people live far from active recreational facilities the interest to use the facilities is reduced.

Table 3: Respondents' Estimated Distances Away from Active Recreation Facility

Estimated Distance Away from Active Recreation Facility	Frequency	Percentage (%)
Less than 1Km	34	8.7
1-2Km	41	10.6
3-5Km	56	14.4
Above 5km	258	66.3
Total	**389**	**100**

Source: Field Survey (2022)

Table 4 presents responses on usage of active recreational facility by respondents. Out of 389 respondents, 47 (12.1%) used active recreational facilities while 342 (87.9%) do not use facilities. This implies that a greater population of the study area does not use active recreational facility.

Table 4: Respondents' Use of Active Recreational Facility

Respondent's Use of Active Recreational Facility	Frequency	Percentage (%)
Yes	47	12.1
No	342	87.9
Total	**389**	**100**

Source: Field Survey (2022)

Table 5 shows responses on whether or not active recreational facilities are optimally located. Out of 389 respondents, 189(48.6%) stated that active recreational facilities are not optimally located, while 200(51.4%) respondents stated that active recreational facilities are optimally located.

Table 5: Location Optimality of Active Recreational Facilities

Active Recreational Facilities Are Optimally Located	Frequency	Percentage (%)
Yes	189	48.6
No	200	51.4
Total	**389**	**100**

Source: Field Survey (2022)

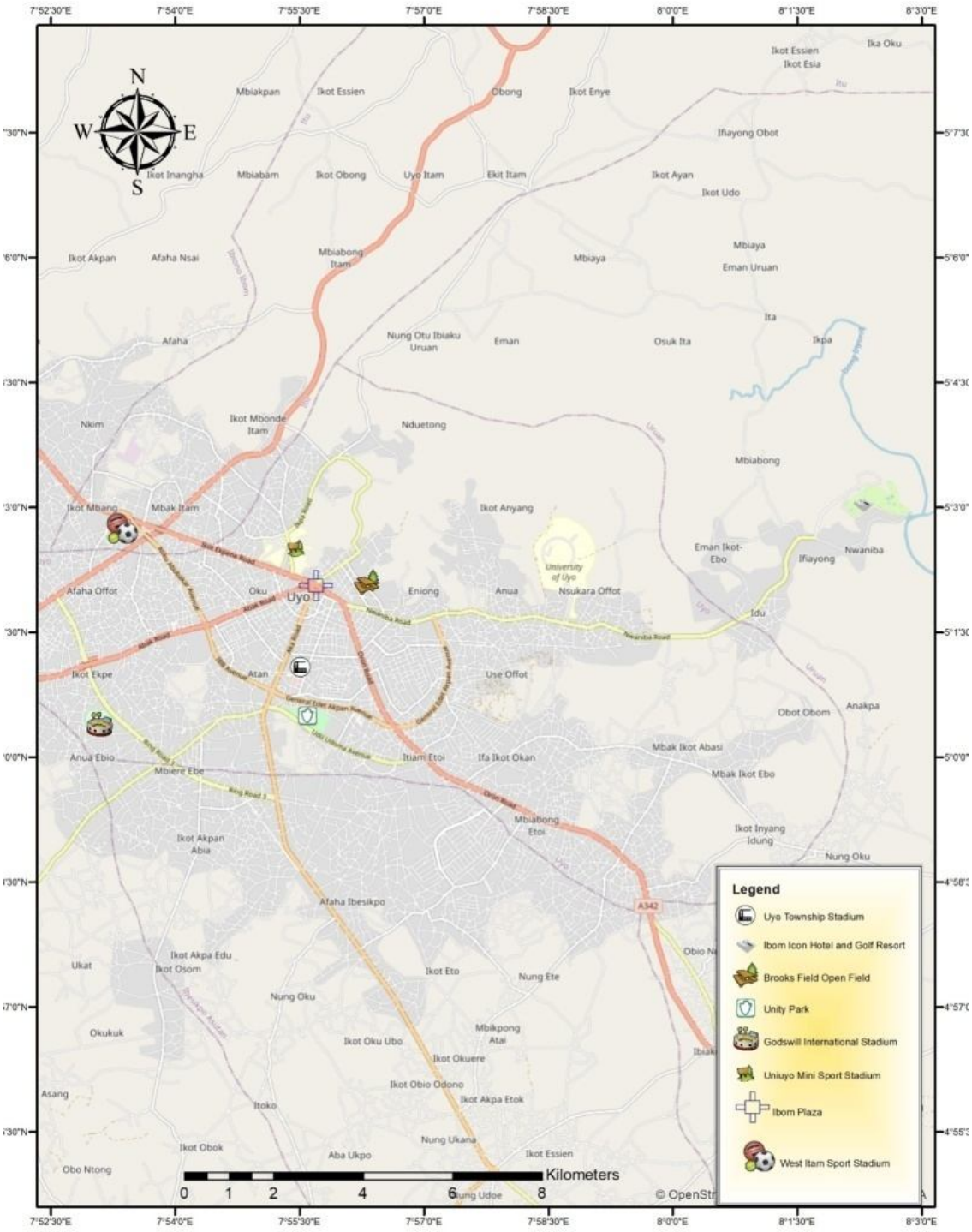

Figure 2: Map of Uyo Urban Showing Active Recreational Facilities.
Source: ArcGis Software (2022)

Table 6: Result Sheet for Nearest Neighbour Analysis of the Study Area

Average Nearest Neighbor Summary	
Observed Mean Distance:	3081.9941 Meters
Expected Mean Distance:	1517.9165 Meters
Nearest Neighbor Ratio:	2.030411
z-score:	5.575532
p-value:	0.000000

Source: ArcGis Software (2022)

6.4 Dataset Information

From the Nearest Neighbourhood statistics the average distance between each point and the distribution pattern of the recreation sites were checked to confirm if the distribution was planned or the result of happenstance. The analysis reveals that there is an average of 3081.9941 metres between each point as shown in Table 6. The pattern exhibited by the distribution is dispersed. Characteristically, the dispersed pattern is usually a pointer to a lack of order and planning in the sitting and situation of these facilities.

7.0 Discussions of Findings

The study revealed that active recreational facilities are not optimally located as effective planning considerations were not made while sitting these facilities; thereby making them difficult to be accessed by interested users. The aforementioned condition is however the reason why Umar *et al.* (2015) reiterated the importance of sitting facilities at optimal locations. The active recreational facilities in the study area are of various sizes of which the bigger the size, the greater the number of users. This fact is corroborated with the opinion of Kara *et al.* (2009).

The Nearest Neighbourhood analysis was conducted to determine the distribution pattern of the active recreational facilities in the study. This revealed disperse pattern. The result of the analysis was 2.030411 meaning that the active recreational facilities were dispersed or randomly located, this agrees with what Umar *et al.* (2015) who stated that a result between 1 and 2.14 indicates that no pattern existed and which is a pointer to a lack of order and planning in the sitting and situation of active recreational facilities in Uyo urban.

8.0 Conclusion

Based on the findings in the study the following conclusion is drawn. It is understandable that Uyo urban was not comprehensively planned and developed. The planning and development of the city are piecemeal. Consequently, the available active recreational facilities were located and developed without planning considerations and were mere part of urban renewal programmes. This to a large extent is responsible for the dispersed distribution pattern observed and the inadequacy in the provision of recreational facilities.

The planning implication of these findings is that Uyo urban needs more recreational facilities to be located closer to the residents for higher patronage. In doing this, deliberate effort must be invested into it and not just by an ad hoc provision as seen in the existing facilities.

9.0 Recommendations

Based on the findings and conclusion drawn, the following recommendations are made:

i. The government and its agencies should establish more active recreational facilities in the study area. The private sector should be encouraged to participate in the provision of these facilities.
ii. Active recreational facilities should be optimally located in accordance with planning standards and equidistant to users.

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