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Informal Use of “Marginal Open Space” Along Residential Streets in a Nigerian City

¹Dr. Temitope Muyiwa Adebara   , ²Dr. Oyinloluwa Beatrice Adebara 

³ Dr. Adewumi Israel Badiora  

^{1&3}Department of Urban and Regional Planning, Faculty of Environmental Studies, Olabisi Onabanjo University, Ago-Iwoye, Nigeria

² Department of Estate Management, Faculty of Environmental Science, Osun State University, Osogbo, Nigeria

¹ E-mail: adebara.muyiwa@oouagoiwoye.edu.ng, ² E-mail: adebaraoyinloluwa@gmail.com

³ E-mail: adewumi.badiora@oouagoiwoye.edu.ng

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ABSTRACT



In today's highly regulated cities, a conspicuous pattern of marginal open space has emerged between buildings and streets. With rapid population growth, different activities are also emerging in the open spaces, particularly in the cities of developing countries. This study explores the informal use of the marginal open spaces along residential streets in Ile-Ife, Nigeria, to identify the physical planning implications. The data for this study were mainly collected through a questionnaire survey and open space measurements. Findings established that the major activities in the open space were necessary (earning income), socio-cultural and leisure pursuits. Land-use problem occurrence index (LPOI) showed that the significant challenges associated with the use of the space were an increase in travel time to destinations (LPOI = 4.33), open space littering (LPOI = 4.17), traffic and pedestrian congestion (LPOI = 4.17), and degradation of aesthetics (LPOI = 3.99). It is therefore concluded that the use of marginal open space has both positive and negative effects on the residential environments of the Nigerian city. The study adds to the body of knowledge in urban studies by empirically investigating the physical planning implications of the everyday use of marginal open space in a developing country.

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1. Introduction

Open space can be described as an area of land not covered by any building or structure within and around urban centres (Woolley, 2005). It may be formally planned and designed for a specific purpose or incidental (Stanley et al., 2012). Formal open spaces include parks, gardens, plazas, playgrounds, golf courses, polo fields, stadiums, and other outdoor recreation grounds (Jurkovic, 2014). Incidental open spaces, on the other hand, are "left-over" areas

that are by-products of the processes of urban development (Trancik, 1986; Garde, 1999; Khalid et al., 2018). They are areas on the edges of buildings and other structures. They are often not meant for anything other than physical

*Corresponding Author:

Department of Urban and Regional Planning, Faculty of Environmental Studies, Olabisi Onabanjo University, Ago-Iwoye, Nigeria
Email address: adebara.muyiwa@oouagoiwoye.edu.ng

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separation, amenities, and safety. These may include open spaces along urban streets and streams, as well as areas around buildings.

Marginal open spaces can significantly contribute to sustainable urban development if properly managed and maintained in cities. They can be found almost everywhere and account for a significant portion of urban land (Garde, 1999). As is typical of formal open spaces such as parks and gardens, marginal spaces may encompass environmental, economic, and social aspects, which are fundamental approaches to sustainable urban development. In other words, like sustainable urban development, open space also has mutually interacted social, economic, and environmental dimensions (See Figure 1). For instance, the marginal open spaces along urban streets promote safety and prevent traffic hazards. They also allow for future street expansion, tree planting, and installing utilities like piped water, telephone, and electricity lines. Planning agencies usually stipulate the minimum requirements for marginal spaces along the streets, which may vary from place to place (Adebara, 2017).

In Nigeria, like in many developing countries, marginal open spaces in urban areas are used for various activities despite the strict official regulations governing the spaces (Basorun & Ayeni, 2013; Afon & Adebara, 2022). These manifest in the indiscriminate occupation of the open spaces and non-compliance with planning regulations governing the spaces. According to Adedeji and Fadamiro (2015), the use of open spaces for informal sector activities has put a significant strain on the physical appearance of most cities and significantly negatively influenced life quality. Furthermore, the encroachment of diverse activities into any accessible open space has resulted in several land-use problems, such as defacing urban aesthetics and open space littering (Adedeji et al., 2014; Adebara, 2021). These land-use problems are likely to have physical planning implications. Besides, the significant problems of marginal open space use in Nigerian cities may be ascribed to a lack of good physical planning and weak regulation of informal activities in urban open spaces. Many cities are not well-designed in terms of contemporary physical planning and are characterized by poor quality and utilization of open spaces (Falade, 1985; Adebara & Adebara, 2019). Policymakers and professionals engaged in urban planning and administration should be concerned about this.

Previous studies have examined how people use open space in urban areas (Garde,

1999; Magalhaes, 2010; Gehl, 2011; Kilnarova & Wittmann, 2017; Askari & Soltani, 2019; Afon & Adebara, 2022). Gehl (2011), an urban theorist, identified three forms of activity in open areas along urban streets and other public spaces. These are necessary, optional, and social activities. People's everyday tasks that are more or less mandatory, such as shopping, are referred to as necessary activities. The occurrence of necessary activities is usually unaffected by the character or quality of the open spaces. While necessary outdoor activities can take place regardless of the quality of spaces, the incidence of optional activities is significantly dependent on the physical condition of the spaces. Thus, the better the physical quality of open spaces, the more urban residents will participate in optional activities such as sitting out to enjoy the fresh air and other leisure activities. Gehl (2011) further described social activities as "resultant pursuits". Essentially, they are activities that can emerge from necessary and optional pursuits. In this category are greeting and conversation, passive contact, and communal functions of different kinds. The literature further shows that people have different perceptions of open spaces and use them for different purposes (Yilmaz, Zengin & Yildiz, 2007; Sanesi & Chiarello, 2006). Some scholars have established that people use open spaces differently because of gender, age, educational status, income, and race/ethnicity (Sanesi & Chiarello, 2006; McWhorter, 2013).

Although studies have looked into the uses of marginal open spaces in cities (Garde, 1999; Madanipour, 2010; Gehl, 2011), the planning implications of using these spaces, especially along urban streets, have not been well researched. This study aims to document this in the residential neighbourhoods of Ile-Ife, a traditional Nigerian city. In this study, "informal use of marginal open space" is defined as using an open area between the edge of a street and the adjoining buildings in a way that is against the laws or regulations governing such an area. The study is significant for many reasons. First, it adds to the body of knowledge in urban studies by empirically investigating the physical planning implications of the informal use of marginal open spaces in a developing country. Second, it provides information that could assist urban planners in developing appropriate policies for open space management. Third, the study's outcome reveals the extent of compliance with the planning laws governing the marginal open space. Lastly, the study's findings could serve as

a tool for developing educational programs and creating urban awareness regarding the

appropriate use of marginal open spaces in residential environments.

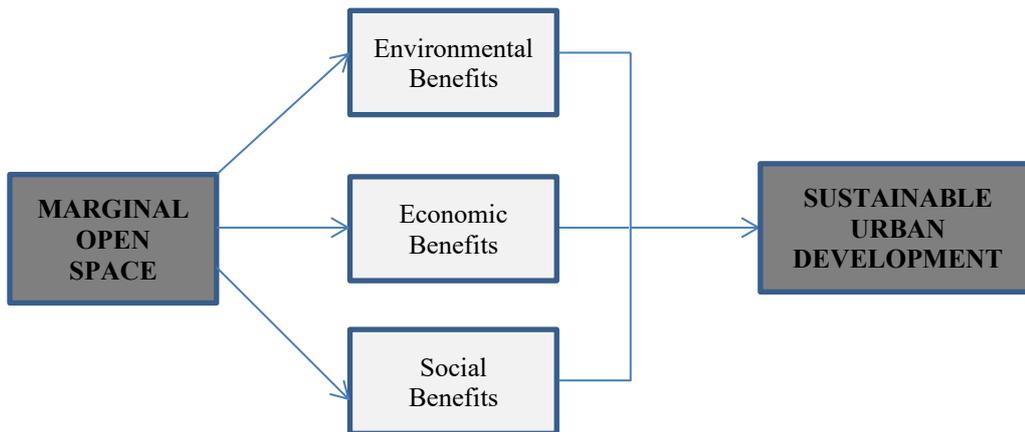


Figure 1. Framework for benefits of marginal open space and sustainable urban development.

2. Study Area

This study takes place in the traditional city of Ile-Ife, Nigeria. The city is known to be the "cradle of Yoruba culture." Ile-Ife occupies a unique place in the Yoruba people's mythology and history. The residents of Ile-Ife are also deeply rooted in culture and tradition (Afon & Adebara, 2022). The town is located at 7° 28' N, 7° 45' N, and 4° 30' E, 4° 34' E. The population of Ile-Ife was about 502,952 people when the 2006 Nigerian population census was conducted (Adebara, 2017). Based on a 2.5% annual growth rate, the population was projected to be 541,642 in 2010. With the rapid population growth of Ile-Ife, there is an increasing demand

for open spaces where people may engage in their daily routine activities. This has resulted in the indiscriminate occupation of marginal open space along the streets in residential areas.

There are four types of residential areas that can be identified in Ile-Ife. These are the core, post-crisis, transition (middle-income), and sub-urban (high-income) residential zones, as presented in Figure 2. The physical planning of the core residential zone (pre-colonial development) is primarily rooted in the culture of the people. The core residential zone is set up like the traditional core area of other Yoruba towns, with the royal palace, town square, sacred groves, and the king's market (Oja-Oba) at the heart of the area.



Figure 2. A map of Ile-Ife and its residential zones.

Source: Ife Central Local Government.

The post-crisis zone was initially part of the core area and sub-urban zone. The present physical and social status of the zone is a result of the communal crisis in the city. Presently, the post-crisis area consists of free-standing homes, vacant lots, and many abandoned buildings, with some waste sites, bushes, and overgrown

trees in between buildings. Most people who live in the area after the communal crisis are immigrants, low-income families, and those who do not work in the formal sector. The transition zone covers the areas developed to some extent through modern-day planning regulations. The sub-urban zone includes areas



that are designed through a good layout plan. The majority of people who live there have white-collar jobs. This study examines the everyday use of marginal open space along residential streets in Ile-Ife.

3. Methodology

A questionnaire survey and open space measurements were conducted to obtain data for the study. Ile-Ife was stratified into the core, post-crisis, transition and suburban residential areas to obtain the data. Through a reconnaissance survey and Google Earth, 391 streets were identified in the four residential areas. This comprised 85, 79, 182, and 45 streets in the core, post-crisis, transition, and sub-urban zones. One of every five streets (20%) in each zone was selected using systematic sampling. Along the selected streets, 561 houses were identified in the four residential zones, consisting of 118, 141, 180, and 121, respectively. After the first house was chosen randomly, every fifth house was selected using systematic sampling to determine where the questionnaire would be administered to obtain information on the use of marginal space and associated land-use problems, among other things. In this technique, 113 questionnaires were distributed to the household heads in the sampled houses. Household heads are providers and users of marginal open spaces around their homes. So, they are thought to be in the best position to give information about how the space is being used.

A list of land-use problems identified through the literature review was presented to the respondents. They were asked to rate the occurrence of the land-use problems on a five-point Likert scale of *never, almost never, occasionally/sometimes, almost every time and every time*. The data analysis using this procedure later evolved into the land-use problem occurrence index (LPOI) index. Each of the ratings mentioned above was given the corresponding values of 5, 4, 3, 2, and 1, respectively, to compute the index. The Total Weight Value (TWV) for each attribute is calculated by summing the product of the number of responses for each rating of an attribute and the respective weight value. This is mathematically represented as:

$$TWV = \sum_{i=1}^5 P_i V_i \dots\dots\dots (i)$$

Where: TWV is the Total weight value,

P_i is the number of respondents to rating i ,

V_i is the weight assigned to attribute i
 i is the value of the Likert point response

The LPOI was computed by dividing the TWV by the total number of respondents for each of the five ratings. This is expressed mathematically as:

$$LPOI = \frac{TWV}{\sum_{i=1}^5 P_i} \dots\dots\dots (ii)$$

Furthermore, open space measurements were conducted to determine the width of the space along the streets. To do this, the trained research assistants measured the distance between the lines of the selected houses for the questionnaire survey and the edges of the abutting streets in metres (m). In addition, interview guides were administered to town planning officials in Ile-Ife to obtain information on the planning standards for open space along the residential streets. Finally, descriptive and inferential analytical methods were employed to analyse the data obtained.

4. Results and Discussion of Findings

The results of this research are discussed in the section. Unless otherwise specified, all tables and plates in this section were products of the survey carried out in 2020. The findings are discussed under four sub-headings as follows:

4.1 Size of the marginal open space along the residential streets

Information from the town planning agencies indicated a minimum requirement for space along the streets in the different residential areas (see Table 1). The space should not be less than 6.5 metres in the core residential area, while the minimum requirement is 8.5 metres in each post-crisis, transition, and sub-urban zone. Thus, it is considered necessary to determine the actual width of the space to establish the average, minimum, and maximum sizes in the different residential areas.

As in Table 1, the minimum and maximum sizes of the marginal space varied directly along the line of residential areas. In other words, the farther one travels from the core to suburban areas, the bigger the size of marginal space along the streets. It was also shown that the mean size of marginal spaces was 5.2 m in the core area, 6.7 m in the post-crisis, 8.5 m in the transition and 10.3 m in the suburban residential



areas. These results indicated that the average size of the marginal spaces in the core and post-crisis residential zones was less than the planning requirements. This could be because many areas in the core and post-crisis zones were built long before the British colonialists introduced modern physical planning. The implication is that the marginal spaces in such areas might not be large enough for the visual amenity and safety of the occupants of buildings along the streets.

4.2 Socioeconomic characteristics of respondents in the different residential areas

The socio-economic status of people may influence how they perceive and use space in

an urban environment (Ceccato & Bamzar, 2016; Yung et al., 2016; Adebara & Adebara, 2020; Agboola, 2022). Thus, this study examined the respondents' socio-economic characteristics in the study area. As stated earlier in this study, the household heads in the selected houses were the respondents for this study. This is because they are users and usually the providers of open spaces around the house. Therefore, they are considered the appropriate respondents for the questionnaire survey. The variables considered essential to the central focus of the study were: age, educational status, and income.

Table 1. The width of the marginal space in the different residential zones (in metres).

Residential Area	Planning requirements	Field measurement		
		Minimum Size	Maximum Size	Mean Size
Core	6.5	3.4	7.3	5.2
Post-crisis	8.5	3.5	10.8	6.7
Transition	8.5	4.1	13.7	8.5
Sub-Urban	8.5	4.6	16.1	10.3
Ile-Ife		3.4	16.1	7.1

The age of the household heads was divided into three categories: over 60 years (adult), 31-60 years (young adult), and 18-30 years (youth). These classes were adopted for ease of analysis and followed the classification of Adebara (2017). Through Table 2, it could be established that the bulk of the household heads in Ile-Ife were young adults. This group represented 80.5% of the sampled respondents in the whole of Ile-Ife. It was the dominant age group in each of the residential areas. This study confirmed that the active age group could perform different activities in open spaces. It was also shown that respondents above 60 accounted for 12.5% and 6.7% of the users in the core and post-crisis areas, respectively. None of the respondents in the other two residential zones was in this age bracket. Thus, the average age of the users decreased as one moved outward from the core area. The difference in users' age across the residential areas was statistically significant ($F = 5.751; p = 0.001$). Therefore, different age groups are associated with different residential zones in Ile-Ife. The implication is that the use of the marginal open space might differ across the residential areas according to the needs of the different age groups.

Educational status is essential to this study. Four levels of education were identified: primary, secondary, tertiary, and no formal education. As shown in Table 2, the most significant percentage of users without formal education qualifications (37.5%) was concentrated in the core area. In comparison, the sub-urban area accounted for the highest percentage (95.7%) of those with tertiary education. As in Table 2, it could be seen that the proportion of users and providers without formal education qualifications varied directly with residential zones. It was therefore implied that the educational status of users and providers increased as distance increased from the core to the sub-urban area. The result of χ^2 value of 80.841; $p = 0.000$ confirmed that education qualification varied significantly from one residential area to another in Ile-Ife. This implies that if education status tends to influence the use of open space, this may vary across residential areas.

Directly related to the education status of the users and providers is the income status. For ease of analysis, three income groups were determined using the Osun State Civil Service income grade levels during the study period. These were the low, middle, and high. Open



space users on salary grade levels 01–06 were categorized as low-income earners (LI), while those on grade levels 07–10 were middle-income earners (MI), and high-income earners (HI) were those on salary grade levels 13–17. The low-income monthly salary was ₦24,500 or less, the medium-income monthly salary was between ₦25,501 and ₦54,000, and the high-income monthly salary was greater than ₦54,000.

From Table 2, users' income varied directly with increasing distance from the core area outwards. This pattern is further explained by the fact that none of the users in the core area was in the high-income group, while 6.5%, 16.7%, and 82.6% of the users in the post-crisis,

transition, and sub-urban areas were in this group, respectively. This pattern of income could influence how users perceive the marginal open space along the streets in various residential areas. This result supported prior research by Afon and Adebara (2022), which showed that the majority of people in the traditional residential setting (core region) of Ile-Ife belonged to the low-income group, whereas the high-income earners primarily clustered in the sub-urban area. The Analysis of Variance ($F = 34.997$ and $p = 0.000$) indicated that the difference in the monthly income of open space users across the four residential zones was statistically significant at 0.05.

Table 2. Socioeconomic characteristics of the respondents (household heads).

Socio-economic Characteristics	Residential Areas				Total (Ile-Ife) f (%)
	Core f (%)	Post-Crisis f (%)	Transition f (%)	Sub-Urban f (%)	
Age Group					
18-30 years	7 (29.2%)	4 (13.3%)	5 (13.9%)	1 (4.3%)	17 (15.0%)
31-60 years	14 (58.3%)	24 (80.0%)	31 (86.1%)	22 (95.7%)	91 (80.5%)
Above 60 years	3 (12.5%)	2 (6.7%)	--- (0.0%)	--- (0.0%)	5 (4.4%)
Total	24 (100.0%)	30 (100.0%)	36 (100.0%)	23 (100.0%)	113 (100.0%)
Level of Education					
No formal Education	9 (37.5%)	5 (16.7%)	5 (13.9%)	--- (0.0%)	19 (16.8%)
Primary	6 (25.0%)	16 (53.3%)	10 (27.8%)	--- (0.0%)	32 (28.3%)
Secondary	8 (33.3%)	7 (23.3%)	14 (38.9%)	1 (4.3%)	30 (26.5%)
Tertiary	1 (4.2%)	2 (6.7%)	7 (19.4%)	22 (95.7%)	32 (28.3%)
Total	24 (100.0%)	30 (100.0%)	36 (100.0%)	23 (100.0%)	113 (100.0%)
Income Group					
Low (≤ ₦ 24,500.00)	17 (70.8%)	13 (43.3%)	20 (55.6%)	1 (4.3%)	51 (45.1%)
Middle (₦ 24,501- 54,000)	7 (29.2%)	15 (50.0%)	10 (27.8%)	3 (13.0%)	35 (31.0%)
High (> ₦ 54,000.00)	--- (0.0%)	2 (6.5%)	6 (16.7%)	19 (82.6%)	27 (23.9%)
Total	24 (100.0%)	30 (100.0%)	36 (100.0%)	23 (100.0%)	113 (100.0%)

As established earlier in this study, the level of compliance with planning regulations

concerning the marginal open spaces followed the educational and income statuses pattern.



Therefore, it can be inferred that the level of education and income of open space users and providers might influence their level of compliance with planning regulations regarding the space along the streets. This corroborated the findings of Awuah and Hammond (2014) that there is a direct relationship between the educational status of people and their compliance with planning regulations.

4.3 Utilization of marginal open space along the streets in the different residential areas

After assessing the sizes and socioeconomic attributes of the providers and users (household heads) of the marginal open space along the streets, this section focuses on examining the uses of the spaces. In order to achieve the above, the household heads were instructed to identify the different uses of the marginal space. Respondents were permitted to identify several activities they recognized. This resulted in multiple responses. The respondents' activities were broadly grouped into three: necessary, optional, and socio-cultural.

As presented in Table 3, it could be seen that the marginal open space along the streets was mostly used for activities that were more or less necessary. Such necessary activities are what people do to survive in their daily lives. These were: trading, artisanship, household cooking, and washing/drying of clothes, respectively, which accounted for 14.0%, 9.8%, 6.9%, and 10.5% of the activities in marginal space in the entire study area. Findings also showed that the necessary pursuits accounted for the highest frequency of activities in the post-crisis (44.2%), transition (40.0%), and sub-urban areas (47.9%).

Next to the necessary pursuits in order of frequency were the socio-cultural activities. Such activities are inextricably linked to the culture and traditions of the people of Ile-Ife. They are what the residents do to fulfil their cultural and religious obligations to departed ancestors and fortify social ties among relatives. Socio-cultural activities accounted for 33.8% of all the uses in Ile-Ife. This category includes ceremonies, burying departed ancestors in open spaces, family gatherings, ancestral worship, and cultural festivals. The study further established through Table 3 that the frequency at which socio-cultural activities occurred in marginal spaces along the streets increased from the sub-urban to the core area. In other words, socio-cultural activities were most

common in the core residential area. This could be because people who live in the traditional residential areas of traditional African cities like Ile-Ife are known to be very rooted in their cultural beliefs and traditions (Adebara, 2017).

The optional activities accounted for 26.4% of all the uses. These activities are what people do when the conditions of open space are optimal and pleasant for them (Gehl, 2011). In other words, the occurrence of such activities is highly dependent on the physical conditions of open spaces. The optional activities were sitting/relaxing outside to enjoy fresh air, children's play, playing Ayo/Draft games, spending time with friends and neighbours, and storytelling. The low occurrence of these activities could be ascribed to the lack of basic auxiliary facilities that could support them along the streets. Such facilities include a well-designed sidewalk, ample outdoor seating area, tree cover and other landscape elements. This finding supports the theory of Gehl (2011) that the incidence of optional and leisure activities is strongly related to the landscape quality of open spaces. Despite the poor quality of the marginal space along the streets, people continue to engage in economic and socio-cultural activities. These are necessary activities in people's daily lives. Given the preceding, this study suggests that marginal open space plays a significant role in people's lives by serving as a place for income-generating and cultural activities. While the utilization of marginal open space enhances life quality, it generates diverse land-use problems in the residential areas of Ile-Ife.

4.4 Land-use problems emanating from marginal space utilisation

As summarised in Table 4, the three most prevalent land-use challenges associated with the marginal space in the core residential area were: traffic and pedestrian congestion, increase in travel time to destinations and conflicts among users with LPOI of 4.68, 4.33 and 4.24, respectively. On the other hand, the vandalism of government properties with an LPOI of 2.97 was the least ranked problem associated with utilising marginal open space along the streets in the area.

In the post-crisis area, the three most highly rated land-use problems were: lack of safety along the streets (LPOI = 4.80), increase in the crime rate (LPOI = 4.35), and open space littering (LPOI = 4.26), respectively. On the other hand, with an index of 2.66, water



contamination was the least perceived land-use problem in the post-crisis area. The study further showed through Table 4 that the respondents in the transition area of Ile-Ife considered the increase in travel time (4.78) to be the most severe land-use problem

emanating from space utilisation in their neighbourhoods. Next to this, in order of ranking, were degradation of aesthetics and open space littering, with LPOI of 4.15 and 4.12, respectively.

Table 3. Uses of marginal open space along the streets in the different residential areas.

Activities	Core f (%)	Post-Crisis f (%)	Transition f (%)	Sub-Urban f (%)	Total (Ile-Ife) f (%)
Necessary					
Trading	25 (12.4)	16 (11.6)	16 (11.0)	22 (22.9)	79 (13.6)
Artisanship	18 (8.9)	16 (11.6)	12 (8.3)	9 (9.4)	55 (9.5)
Household cooking	13 (6.4)	15 (10.9)	9 (6.2)	2 (2.1)	39 (6.7)
Washing/drying clothes	11 (5.4)	14 (10.1)	21 (14.5)	13 (13.5)	59 (10.2)
Sub-total	67 (33.1)	61 (44.2)	58 (40.0)	46 (47.9)	232 (40.0)
Socio-cultural					
Ceremonies	21 (10.4)	13 (9.4)	29 (20.0)	18 (18.8)	81 (13.9)
Burying of Departed Ancestors	16 (7.9)	9 (6.5)	13 (9.0)	6 (6.3)	44 (7.6)
Family meetings	23 (11.4)	14 (10.1)	--- (0.0)	--- (0.0)	37 (6.4)
Ancestral worship	14 (6.9)	7 (5.1)	2 (1.4)	--- (0.0)	23 (4.0)
Cultural festivals	8 (4.0)	3 (2.2)	--- (0.0)	--- (0.0)	11 (1.9)
Sub-total	82 (40.6)	46 (33.3)	44 (30.4)	24 (25.1)	196 (33.8)
Optional					
Sitting/relaxing outside to enjoy the fresh air	12 (5.9)	9 (6.5)	18 (12.4)	9 (9.4)	48 (8.3)
Children's play	18 (8.9)	11 (8.0)	6 (4.1)	14 (14.6)	49 (8.4)
Playing Ayo/Draft games	11 (5.4)	7 (5.1)	14 (9.7)	2 (2.1)	34 (5.9)
Spending time with friends/neighbours	7 (3.5)	4 (2.9)	5 (3.4)	1 (1.0)	17 (2.9)
Story-telling	5 (2.5)	--- (0.0)	--- (0.0)	--- (0.0)	5 (0.9)
Sub-total	53 (26.2)	31 (22.5)	43 (29.6)	26 (27.1)	153 (26.4)
Grand Total	202 (100.0)	138 (100.0)	145 (100.0)	96 (100.0)	581 (100.0)

* Note: The total exceeded the number of household heads surveyed since multiple responses were allowed.

Table 4. Land-use challenges associated with marginal space.

Land-use problems	Core	Post-Crisis	Transition	Sub-Urban	Ile-Ife
	LPOI	LPOI	LPOI	LPOI	LPOI
Odour from uncollected waste/filthy drain	3.77	3.79	4.11	3.87	3.89
Noise pollution	3.52	4.13	4.03	3.88	3.89
Lack of safety along the streets	3.99	4.80	3.08	4.02	3.97
Blockage of drainage by wastes	3.84	3.52	2.05	3.24	3.16
Degradation of the aesthetics	4.01	4.21	4.15	3.59	3.99
Water contamination	3.01	2.66	2.41	3.24	2.83
Traffic and pedestrian congestion	4.68	4.01	4.09	3.89	4.17
Open space littering	4.18	4.26	4.12	4.12	4.17
Road accidents	3.89	3.91	3.50	3.04	3.59
Vandalisation of government properties	2.97	3.10	3.00	2.57	2.91
Conflicts among users of open space	4.24	4.17	3.45	3.99	3.96
Increase in travel time to destinations	4.33	4.11	4.78	4.09	4.33
Increase in crime rate	3.99	4.35	3.61	2.44	3.60



Mean LPOI	3.88	3.92	3.57	3.54	3.73
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Note: the acronym LPOI stands for Land-Use Problem Occurrence Index

Similarly, the most prevalent land-use problem perceived by the respondents in the sub-urban area was open space littering (4.12). Other significant land-use problems identified in the sub-urban zone included: an increase in travel time (4.09), lack of safety along the streets (4.02), conflict among users of open space (3.99) and traffic and pedestrian congestion (3.89). Each above had an index higher than the mean LPOI for the sub-urban zone (3.54). Overall, the study showed that the four significant challenges associated with the use of the space in Ile-Ife were an increase in travel time to destinations (4.33), open space littering (4.17), traffic and pedestrian congestion (4.17), and degradation of aesthetics (3.99).

5. Conclusion

Based on the above findings, the study concluded that the use of the marginal open space along the streets varied across the residential zones of a Nigerian city, reflecting people's socio-economic status. In essence, the study established that the use of open space has a spatial dimension. This should be taken into consideration for effective regulation of open space activities. While the everyday use of marginal space is essential in people's daily lives as a place for economic, socio-cultural, and leisure activities, it causes various land-use problems in residential areas. Therefore, using open spaces has both positive and negative effects in residential environments.

In light of the preceding, urban residents should be informed and educated on the values of marginal open space in the built environment and the consequences of disobeying town planning regulations. The planning agencies should also prevent the haphazard location of activities in open spaces to avoid breeding land-use problems. The everyday use of space is not necessarily the problem, but rather the haphazard location and poor management of activities through inappropriate policies and weak enforcement of regulations governing marginal open spaces.

Additionally, policymakers should respond to people's needs in regulating marginal open spaces. The planning regulations should be reviewed to reflect reality

so that open space may become more valuable when planning requirements are met. While the supply of formal open spaces such as parks and gardens is decreasing in cities, the marginal spaces can be made more useful by encouraging various social and cultural activities in addition to the necessary activities (such as earning income). In essence, marginal space should be seen as a valuable asset contributing to sustainable urban development. The use of open space for social purposes should be encouraged by providing a well-designed sidewalk, an ample outdoor seating area, tree cover and other landscape elements along some major streets in residential neighbourhoods. This will assist in achieving a more lively and sustainable urban living pattern.

Although this study adds to the body of knowledge in urban studies by empirically investigating the physical planning implications of everyday use of marginal open space along residential streets in a developing country, further research is still needed. Further studies should determine the specific factors influencing how people use different types of marginal open spaces in different countries. This is because people may act differently in various open spaces depending on the type of the spaces and people's culture and norms.

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Conflict of Interests

The authors declare no conflict of interest.

Data availability statement

The data that support the findings of this study are available from the corresponding author, [T. M.], upon reasonable request.

Ethics statements

Studies involving animal subjects: No animal studies are presented in this manuscript. Studies involving human subjects: No human studies are presented in this manuscript.

CRedit author statement:

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