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Evaluation Of Sustainabile Landscape Infrastructure Planning In Uyo Metropolis, Akwa Ibom State

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Abstract: ***Nigerian urban centres and cities are hugely lacking in sustainable landscape infrastructure as a result of poor planning and inappropriate urban policies. Citizens' sense of place and urban experience are mainly derived from a strong and an exciting city character emanating from the ensemble of sustainable landscape infrastructure. In this sense, the study aimed at evaluating sustainable infrastructure planning in Uyo Metropolis, the capital of Akwa ibom state, Nigeria. The survey research method was employed and data were primarily gathered through reconnaissance survey, observation, and measurement. Secondary data were also obtained from journals and Akwa Ibom State bulletin. Adequacy Analysis was adopted and data were descriptively analyzed with the use of percentages and clustered bar charts. Major issues for evaluation were urban landscape character, architectural character, streetscape character, carriageway character, and parking facilities. The study revealed that the landscape infrastructure in Uyo is inadequate, and not appropriately and sustainably planned. From the study, it was revealed that, the character of Uyo Metropolis portrayed a general lack of landscape elements and details to give definition and visual continuity to the streets. It was clear that, the streets lack appropriate sense of enclosure and contribute little or nothing to the quality of sustainable urban experience. It was also found that streets in the study area have been taken over by commercial activities; about 70%, which dampens the quality and sustainability of landscape infrastructure. In a related development, the neo-classical building style formed the majority and so constituted about 44.6%. The dormer style that has the capacity and strength to evoke an exciting street view was just too inadequate as only 4.4% of the buildings were traced to it. The study however recommended that, wider walkways around the central area of Uyo to accommodate sidewalks cafes, clear walking zones and amenity zones. Shop balconies, porches and awnings should be allowed to overhang the public right of way in the central area of the city. Tree planting and natural landscape features should be massively introduced into the streets of Uyo to boost the overall urban landscape infrastructure. Parking facilities should be redesigned and upgraded. Thus, the study concluded that, Urban Planning Authority should proffer multidisciplinary policies that are essential to cultivate sustainable landscape architecture with the motive to provide stability for ecosystem.***

Keyword: Landscape Infrastructure, Sustainable Urban experience, City Character, Ecosystem, Uyo Metropolis

I. INTRODUCTION

Glaringly, the aim of sustainable landscape architecture include a reduction of pollution, heightened water management and thoughtful vegetation choices (Bean and Yang, 2009). This could be in form of street beautification through planting, the design of a sustainable urban drainage system, which can protect wildlife habitats, improve recreational facilities and save money through flood control. It could also come through the design of a green roof or a roof garden that also contributes to the sustainability of a landscape architecture project. The roof manages surface water, decrease environmental impacts and provide space for recreation.

Although landscape infrastructure alone does not guarantee urban sustainability, but its provision does go some way toward ensuring the compatibility of urban areas with their surrounding natural environments. Not only does landscape infrastructure help to reduce the impact of urban

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pollution but it also facilitates the meeting of basic needs of urban residents, which is equally important in making urban sustainability possible. (Hardoy, et al, 1992; Choguill, 1993).

The Urban fabric consists of the shared civic spaces-the streets, parks, squares, plazas etc. It is in the civic spaces that urban life happens-strolling in the streets, sitting in the roadside drinking gardens, or relaxing in the plazas. The quality of these spaces holds the key to the quality of urban environment, and urban life experience. According to Pike (1979), the quality of streetscape, and basic infrastructural amenities is of paramount importance to the people.

The elements that make up urban landscape infrastructure are streetscape, corridors for vehicles and pedestrians, buildings, open spaces, street trees, street furniture, and well equipped public utilities, among others. These elements impact the way the city looks and feels; the design and feel of the streets, the shape of buildings flanking the streets, the quality of adjoining open spaces, the installation of street furniture, and the relationship between uses. Above all, it is the relationship between these elements that creates a series of outdoor activity areas, environment and quality experience of the urban environment. They essentially make up the image of a city. The city's streets must fulfill their roles not only in ensuring that the movement of vehicles be organized with safety and efficiency, but that the walkways and street spaces are safe and contribute to the visual and social quality of the city.

In the developed countries, urban landscape infrastructure; street design and installation influences appearance of the city. This is so because each element has its own character and function based on its hierarchical role in the network and existing land use pattern. Its visual image distinctively conveys the functional character, strongly reinforces its circulatory hierarchy and activity role, and decidedly assists in the orientation, thereby contributing to the urban scape identity and spatial vitality of the urban environment. In developing countries like Nigeria, streets as a whole have consistently been built principally as vehicular-oriented environment, a mere utility (Falade, 1998). Among other things, this bias is responsible for the exclusive installation of roadways while other streetscape elements are obviously ignored, which seriously affect the character and city's appearance. Thus, the main trust of the study is to evaluate the sustainable landscape infrastructure planning in Uyo Metropolis with the view to make recommendations towards sustainable improvements.

II. THE STUDY AREA

Uyo is the capital city of Akwa Ibom State, located at the South-south zone of Nigeria with over 500,000 inhabitants, lying between latitudes 4°321 and 5°331 North, and longitudes 7°251 and 8°251 East (see figure 1.1). The study area extends to roughly 1 km radius of the city and covers the five premier streets in the central business district which are Ikot Ekpene Road, beginning from Itam Peace Column, which is the gate way to the city from north-west; Wellington Bassey Way from the former Sub-Treasury; Oron Road from Nwaniba Road junction; Aka Road from 2nd Ring Road junction; and Abak Road from Babangida Ring; all leading back to Ibom Connection (see figure 2.1).

Historically, the growth of Uyo as a city has been around the Ibom Connection (formely known as the "circus"), spreading out from it radially along the five streets. Even though rings of street network were created to allow traffic circulation by-pass the central area (Udom, 2003), these five streets still provide main access to activity areas and secondary streets in the city. They carry the highest volume of traffic and are the most significant streetscape corridors in the city (Udom, 2003). A field survey has confirmed that more than 80 percent of the bank offices, supermarkets and other business and commercial activities in the central business district of the city are located on them. A new master plan for the city following its new status as a state capital in 1987 recognized this radial pattern of development and sought to enhance and reinforce this historically established structure (Udom, 2003). It therefore created another set of ring road network to reinforce movement coming into the city to by-pass the central area of the city. The phenomenal growth in service business and commercial activities and the location of taxi and motor parks along these five streets following the upgrading of the city aggravated traffic flow situation. The immediate solution offered by the Master Plan to decongest this section of the city, and at the same time give a new look to it was the creation of a partial loop around the Ibom Connection. The loop runs from Ikot Ekpene Road across Abak and Aka Roads and terminates at Oron Road. By this arrangement, a pedestrian plaza was created around the Ibom Connection.

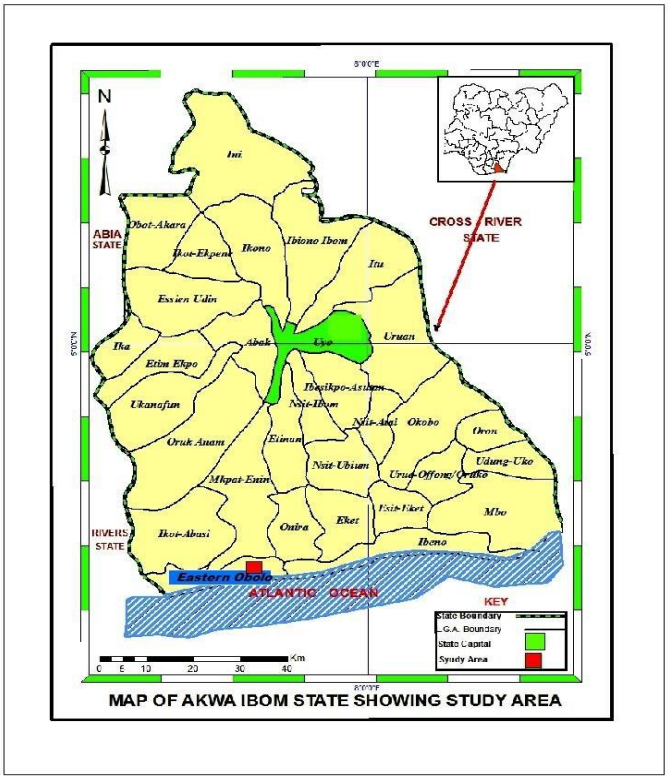

Figure 1.1: Uyo Metropolis

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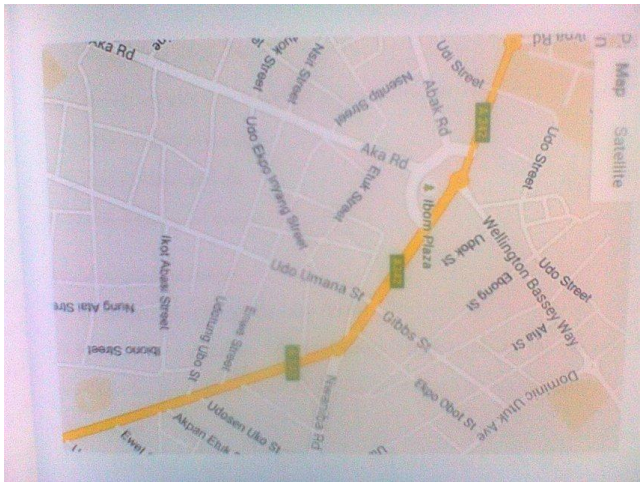


Source: Researchgate, 2021

Figure 2.1: Road Network of Uyo Metropolis

III. MATERIALS AND METHODS

The study employed field survey, involving adequacy analysis. This procedure combines field observation, inventory, and measurements with photographs of some major features and photo assembly to portray the status of urban landscape infrastructure in Uyo Metropolis, with several primary issues relating to the streetscape and character in their existing contexts identified for study. They were urban landscape character, street elements, sanitation, architectural, carriageway characters, and elevations. Journals and State bulletin were also consulted as secondary data. The data collected were analyzed descriptively with the use of percentages and clustered bar charts.

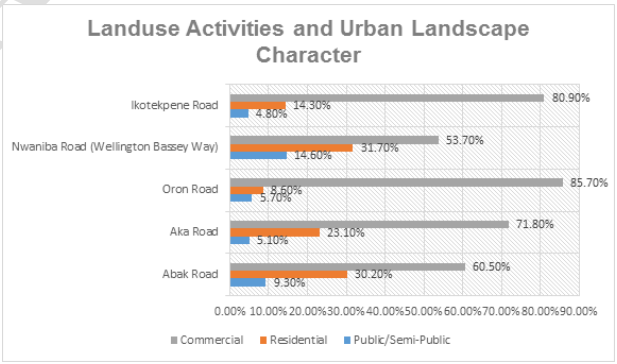
IV. RESULTS AND DISCUSSION

URBAN LANDSCAPE CHARACTER

Building location and density along a street strongly influence the character it may evolve. This explains why requirements for building types, orientation and setbacks are part of control measures for orderly and sustainable landscape infrastructure development planning. The five connecting streets under study generally exhibits poor urban character with inadequate landscape infrastructure. A primary mixture of residential, commercial, and public/semi-public character neighbourhood. Figure 3.1 shows that Abak Road has 9.3% of public/semi-public activities, 30.2% of residential, and 60.5% of commercial activities. Aka Road has 5.15 of public/semi-public uses, 23.1% of residential, and 71.8% of commercial activities. Oron Road has public/semi-public activities of 5.7%, residential use of 8.6%, and commercial use of 85.7%. Nwaniba Road (Wellington Bassey Way) has 14.6% of public/semi-public use, 31.7% of residential use, and 53.7% of commercial use. Also, Ikotekpene Road has 4.8% of public/semi-public use, 14.3% of residential use, and 80.9% of commercial use.

The study revealed that, Oron road has the highest proportion of commercial activities, which is the more reason landscape elements are utterly lacking. On the overall, commercial activities are almost taking over the entire streets of the Uyo city centre, occupying 70% of the land use area. Residential land use constitute 22%, while public/semi -public occupied 8%. Majority of the buildings along these streets were designed originally to house residential activities, but are now being converted for commercial purposes. Though they have front entrance doors and flanking facades facing the street, the building masses are too loosely organized to create defined urban spaces between them and the street.

The road signage reveals an enormous problem with sign clutter, particularly regarding directional signs. There are some good examples of signs like the Peugeot office sign on Oron Road, but there is a great inconsistency in the character and type of public signage. Major landmarks, which are easily identifiable elements and which provide orientation and help to guide people through the city are generally lacking except the Itam Peace Column at the gateway to the city on Ikot Ekpene Road; Babangida Ring Monument at the junction of Abak Road and Babangida-Atiku Abubakar Avenues; Nwaniba Roundabout Monument at the junction of Oron and Nwaniba Roads; the Water Fountain Rotary at Nwaniba Road, and Ibom Connection and Plaza, which provide the main visual amenity in the central area of the city. Views down the streets do not contribute to the quality of the urban experience, because unsightly utility lines, in many instances crisscross them.



Source: Authors' Field Survey, 2019

Figure 3.1: Distribution of Land use Activities along Streets in Uyo

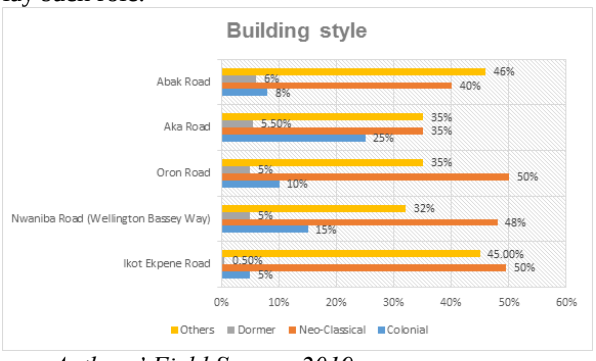
ARCHITECTURAL CHARACTER

Individual building designs have significant impact on appearance of a street in the use of certain design elements, such as color, materials, window spacing and basic massing proportions. If these elements are not well organized, they can produce negative impact on the overall image of the city, as it the case in Uyo, which has a rather poor architectural presentation. The built form in Uyo is characterized by heterogeneous mixture of building types, some referencing various periods of development, which Udom (2003) has characterized into three types:

- ✓ The colonial period of oriental style with hipped roof design. While some of these structures are of considerable historic interest, they are very dilapidated and have negative visual effect on the streetscape.

- ✓ The period of Independence and State creation, which saw the coming of neo-classical style of 'flat roof" with aluminum fascia, and;
- ✓ The recent style of dormer and rhythm of multi-roof designs, which are too few to make any significant visual impact on the central area of the city except in the new residential suburbs. The dominant house types, of course, lack any architectural merit, which in fact are not architectural designs but mere haphazard enclosures of space. Besides, they are old and obsolete.

The building proportions, materials and detailing of many of the houses emphasize horizontal façade. However, pockets of old buildings, such as Christ the King Cathedral on Willington Bassey Way; United Bank for Africa (UBA) on Aka Road and Qua Iboe Church on Abak Road, and recent development of mainly commercial bank structures along the streets emphasize vertical façade with massing compositions. Figure 1.2 however, summarizes the percentage distribution of building styles in the five selected streets of Uyo Metropolis. In Abak Road, 6% of the buildings were dormer style, 8% were colonial, and 40% were neo-classical, while 46% of the buildings feel into other styles that are not conventional and known. In Aka Road, 5.55 of the buildings were dormer, 25% were colonial, while neo-classical and other non-conforming building styles constituted 35% apiece. In Oron Road, 5% of the buildings were dormer style, 10% were colonial, and 50% were neo-classical while 35% were others. Nwaniba Road (Wellington Bassey Way) has 5% of dormer, 15% of colonial, 48% of neo-classical, and 32% of other incomprehensible styles. Also, Ikotepkene Road has 0.5% of dormer style, 5% of colonial, 50% of neo-classical, and 45% of other styles. On the overall, the study revealed that the building styles dominating Uyo landscape character is neo-classical with about 44.6%, identified by flat roof and aluminum fascia. The colonial style has 12.6%, dormer 4.4%, while other styles which are a characteristic of informal settlement constitute 38.6%. Dormer style is the one that would have enliven the city landscape appearance, but unfortunately, the style is grossly inadequate to play such role.



Source: Authors' Field Survey, 2019

Figure 4.1: Distribution of Building style along the 5 Street in Uyo

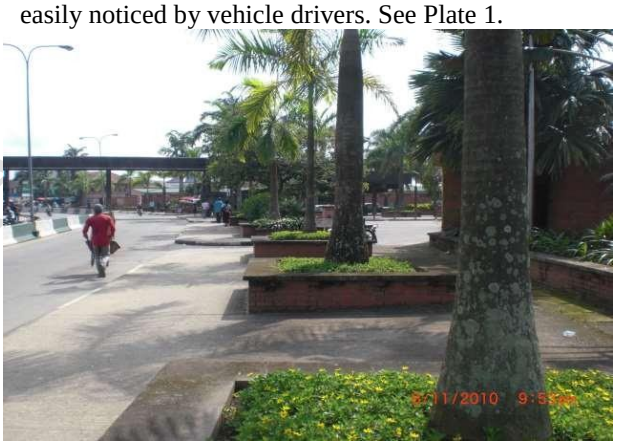
STREETSCAPE CHARACTER

Streetscape elements contribute significantly to the visual appearance, unity, character and livability of a city. The significance of different types of streets can be reinforced by the type and location of these elements. The streetscape character of the five streets is described as follows:

RIGHT-OF WAY CHARACTER

This is the space between the kerbs and the property line of a building adjoining the street, which should normally contain the kerbs, paved walkways, boulevard lawn and street trees. This strip is not properly developed along all the five streets. However, details of development are further broken down as follows:

- ✓ Pedestrian Amenity /Walkways: Which are established in some portions of these streets, are not properly installed and are equally not finished in an attractive manner. Also theses streets are not being shaded by trees that would have made them to look very interesting to walk on by the users. Improved pedestrian circulation is critical to providing increased safety. However, though poorly maintained, an attractive streetscape for the central area of the city was created for an inviting pedestrian-street environment through generous and well-designed walkways and cross walks. Pedestrian crosswalk with different material, provided with a reflective light edger easily noticed by vehicle drivers. See Plate 1.



Source: Authors' Field Survey, 2019

Plate 1: Loop off Ikot Ekpene road and Pedestrian walk

- ✓ Abutting Private and Public Street Spaces: These infrastructures are grossly inadequate in Uyo Metropolis. However, only Ibom Plaza that was built in 2001 provides recreational outlets in the central area of the city. Many of the mini shops relaxation spots have been integrated as part of the street spaces. The former Uyo Federated Motor Park along Ikot Ekpene Road, was developed into pleasant outdoor space area like amphitheater for social gathering and out -door crusade and other special functions. See Plate 2.

Source: Authors' Field Survey, 2019

Plate 2: Amphitheatre, Ibom Plaza, Uyo

- ✓ Street Furniture: street furniture are also lacking in Uyo Metropolis. Series of street furniture items along streets can create an exciting street view and relaxation spots for a beautiful urban life experience. The few street furniture were observed around the Ibom Plaza. Nonetheless, maintenance of this infrastructure is poor, which does not encourage effective use. See Plate 3

Source: Authors' Field Survey, 2019

Plate 3: Street Furniture

- ✓ Bus Shelters: Along these streets, there are no bus shelters in use for easy access by commuters. These are basic infrastructures that can support the meaningful existence of life in the cit. They serve as both shelters and loading bays for commercial vehicles.
- ✓ Street Lights: Along the streets, majority of the street lights are not functional. They were installed many years ago devoid of maintenance. The street lights were to provide lighting that is required to produce the right ambience relevant to night time environment of quality. Unfortunately, this experience is lacking.
- ✓ Refuse Bins: Along these streets are also recycle bins at strategic locations for dispose of waste heaps of refuse. But a sustainable waste management approach is lacking in uyo Metropolis. This development has made the recycle bins to appear very unsightly, constituting the biggest eyesores along these streets.

CARRIAGEWAY CHARACTER

The designed street system shows a hierarchy of importance, which enables it to be clearly understood and used. It also responds to the needs of the area served by providing the greatest degree of safety for all users. However, the carriageways do no possess strong city character that could evoke a sense of place from visual appeal. Below gives the carriageway characteristics and degree of pedestrian safety for the five streets:

a. ROADWAY IMPROVEMENT/ KERBS AND CHANNEL CONDITIONS

Good road network with concrete walk Design are often primarily installed for easy pedestrian and vehicular movement and proper drainage channels. Conversely, the site grading for the roadways of the streets in Uyo affects drainage pattern such that disposal of storm water becomes a serious problem along these streets. Improvements in this infrastructure including traffic engineering, such as efficient signal systems and installation of road signs were never considered until recently when ikot ekpene Road by Itam junction, and Wellington Bassey Way were given face-lift. See Plate 4.

Source: Authors' Field Survey, 2019

Plate 4: Roadway Improvement/ Kerbs and Channel Conditions at Itam Junction Uyo

PARKING FACILITIES

The study conducted revealed inadequacy of standard streetscape parking to meet specified standards in order overcome parking problems in Uyo. Properly designed parking lots in a way that maximizes the number and quality of spaces are not available. Additionally, there are no directional signs to the parking space and enhanced pedestrian walkways to connect the parking to businesses which is an essential element. This implies that a unified parking management plan was not developed, implemented and enforced in order to co-ordinate use of the parking spaces.

V. CONCLUSION

The character of Uyo Metropolis portrayed by this study shows a general lack of landscape elements and details to give definition and visual continuity to the streets. The findings showed that commercial activities have inundated the streetscape and so makes the street view appear unexciting. The dormer building style that is always expected to give life to the urban landscape is grossly lacking. The predominant images of the central areas of the city derived from their streetscapes has to do with an uncoordinated building masses dotted with unsightly display of assorted wares in business premises and street shop fronts, crisscrossing of utility lines, uncoordinated road signs silhouetted against the Uyo city skyline. From the study, it was obvious that, the streets lack appropriate sense of enclosure and contribute little or nothing to the quality of the urban environment. The landscape infrastructures generally are unexciting and can be psychologically boring and exhausting, particularly for the pedestrians. Streets, when sensitively treated with aesthetically pleasing and sustainable landscape elements link and coalesce a diversity of the built form and accent, and spatially define each of the streets, giving positive character to the city. In Uyo Metropolis, the balance of hard and soft landscape elements in

the entire streetscape is completely absent and the provision of a pleasant, comfortable and relaxed sequence of landscaped spaces does not exist. The adequacy analysis employed in this study is by no means an exhaustive list of issues relating to the problems of landscape infrastructure not only in Uyo but also in other cities of Nigeria.

The identity and recognition of urban image is based upon human perception, which is greatly influenced by designed elements of the urban form-the paths, nodes, edges, districts, and landmarks. In all of the urban landscape elements, streets are ranked the highest in providing order in the city landscape. The character of the streetscape therefore plays an important role in the visual image of a city. Almost all Nigerian streets are grossly deficient in streetscape elements, having negative impact on their appearances. For a city to be considered beautiful, individual streetscape elements must be seen and appreciated as being attractive, organized in form and material and be compatible in appearance with the architectural theme of the street. Also, significant to the visual image is the successful integration of the individual elements within the total streetscape setting. This involves a coordinated design program for the streetscape that avoids clutter, reinforces function and hierarchy and assures consistency in the appearance, use and placement of elements in the general landscape infrastructure of Uyo Metropolis.

Thus, there is need to provide wider walkways around the central area of Uyo to accommodate sidewalks cafes, clear walking zones and amenity zones. Shop balconies, porches and awnings should be allowed to overhang the public right of way in the central area of the city. Tree planting and natural landscape features should be massively introduced into the streets of Uyo to boost the overall urban landscape infrastructure. Parking facilities should be redesigned and upgraded. This could be achieved through strategies such as provision of adequate on and off-street parking to meet demand in major traffic areas, provision for parking restrictions along the streets where on-street parking is prohibited, and prohibition of parking in adjacent spaces perpendicular to street corridors to avoid traffic disorder. The emphasis on sustainable landscape architecture should be a conscious effort that protects people's surrounding. By connecting people to their environment with landscape elements and character, it becomes part of their identity, and it gives motive to protect the ecosystem. The Urban Planning Authority should therefore proffer multidisciplinary policies that are essential to cultivate sustainable landscape architecture.

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