

## Full Length Research

# Revitalizing urban public open spaces, through, vegetative enclaves in Lokoja, Nigeria

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Accepted 19 February, 2009

**The rapid increase in population, in conjunction with increase in the rate of urbanization, had led to unplanned and uncontrolled expansion of Lokoja town, these have also resulted in the gradual loss of open spaces in the city, due to quest for built up area. Land uses were classified using I.L.WIS 3.2, from acquired land sat E.T.M images for 1987 and Niger sat images for 2007. It was found that the loss of open spaces increased to 23.23 sq.km by 2007, this calls for a need for revitalization of open spaces. Suggestions as a solution had been made, through the enforcement of town planning laws.**

**Key words:** Increase builtup area, loss of open space, enforcement of town planning laws.

## INTRODUCTION

An open space in an urban setting had been described as a vacant land, either built upon or developed as gardens and recreations grounds or underdeveloped land which has value for recreational purposes, amenity, conservation and other natural resources, historic or scenic land scopes or areas of outstanding natural beauty such as water bodies, valleys, hills, maintains, (Bryom, 1971; Abdulkarim, 2004; Okoli et al., 2008).

Lokoja being an emerging large city had began to show the characteristics of urbanization where inadequate consideration and neglect for the landscape and open space development is experienced.

It has been observed that green grass are continually being converted to build area due to largely to pressure from increase population and in most cases occasioned by political and economic conditions (Alabi, 2007). Recently in the study area, areas originally planned as open spaces are being systematically replaced deliberately by other land uses. Multidimensional activities such as economic, transportation have all been merged into one sphere (Okoli, 2008).

This is contrary to what used to obtain where schools and public establishments, acquire vast land with 70% left as open space and the remaining 30% built up area. It has been found that ,today, even schools do not have football fields or adequate sized play ground, what used to be open spaces have now been transformed into several uses, such as areas of construction of temporary kiosks for commercial purposes, refuse dumps, siting of illegal structures, areas of defecating etc.

It is therefore pertinent to recover this land in order to redress the best use and functions.

## Study area

### Location

Lokoja town is located in Kogi state, of the old Kabba province at the confluence of the Niger and Benue Rivers. The town lies on the western bank of the river Niger at an altitude of 45 - 125 m. At the northern part the town is dominated by a high plateau, the patti ridge, which reaches an altitude of 400 m above mean sea level (Lokoja Master Plan, 1974 - 2005).

Geographically, Lokoja is located between latitude 7°49' north of the equator and longitude 6°44' east of the Greenwich meridian. Lokoja town which is also the headquarters of Lokoja Local Government Area and it is centrally and strategically located. It serves as the gateway to the North and the South of Nigeria. It shares common boundaries with Koton-Karfe, (Kogi LGA), Kabba/Bunu, Ajaokuta, Bassa and Adavi Local Government Areas.

The history of Nigeria cannot be complete without the name of Lokoja. The town as it is known today has a long standing history; the area has contributed in no small measure to the socio-political development of Nigeria before, during and after the colonial periods.

In 1904, Lord Lugard moved the headquarters of his administration from Lokoja to Zungeru to enable him subdue other Northern towns under British flag. Lokoja is the first headquarters of Northern Nigeria immediately after the amalgamation of the North and South of Nigerian in 1914.

However, in the year 1945, Lokoja became provincial headquarters of Kabba province. By 1954, the area was named Kwara Native Authority with Koton-Karfe division, Kakanda, Kupa, Eggan, Oworo and Lokoja Districts fused into one native authority for

administrative convenience with Lokoja as headquarters. But this name was later changed to Federal Native Authority. It is worthy to note therefore, that as at that time, there were only two Federated Native Authorities in the entire Northern Nigeria.

When General Gowon's administration broke the country into twelve states on 27<sup>th</sup> May, 1967 and thus West Central (later Kwara State), the area was renamed Kogi division, and from here the erstwhile provinces of Kabba and Ilorin were merged to be known as Kwara State.

After 1976 Local Government reforms, the name was changed once again to Kogi Local Government Area, which comprised six districts of Lokoja, Koton-Karfe, Oworo, Kupa, Kakanda and Eggan.

Furthermore, when on 27<sup>th</sup> August, 1991, Babangida administration created Kogi State, which was carved out of the old Kwara and Benue States, the area was named Lokoja Local Government Area while Koton-Karfe, now an autonomous local government area bears the name Kogi Local Government Area (Datti and Dogwo, 2004). The creation of Kogi State with Lokoja as the capital brought about influx of population due to its status as an administrative headquarters. All these brought about development of the town which gave birth to Department of Urban and Regional Planning of the Ministry of Environment and physical development change of planning and the monitoring physical development in the town. Lokoja has a population of about 77,516 in 1991 which increased to 1952,261 in 2006, with 100,573 males and 94,688 female (National Population Census, 2006).

### **The concept urban open spaces**

Rapoport, 1979 defined a city as an area of relatively large diverse and permanent settlement of socially heterogeneous individuals and in terms of functions; it is a region of organized and effective use of space, a ceremonial centre having symbolic meaning, a cosmic symbol, powerful enough to organize areas. Open spaces could be classified as functional and non functional, it is functional when it serves a particular purpose and vice versa and it could also be described as public or private. While the private open space is owned by private individual, public open spaces area usually is government owned.

The ideas of having open spaces is not a new in the study area; this can be traced to ancient times where open spaces were used by the public for meeting or as meeting places for people from heterogeneous backgrounds who remain in each others spatial spheres. The public domain exists as a spatial shell which crystallizes into public space.

This space dictates the relationship between the city and the public as a well designed public space maintains the delicate balance of the proper functioning of the city (Mostowka, 2005; Okoli et al., 2008).

### **Urban open spaces**

#### **Historical overview**

The function of the public open spaces in Nigeria has been traced to the pre-colonial times where cities were designed with spaces incorporated in the Northern Nigeria they function as market spheres, Horse riding spheres, areas preserved for Durbar, Hawwan Daushe,

Hawwan Nassarawa. ('Fillin Sukuwa'), usually situated in the front of the emir's palace or other designed areas of the town. Similarly in the west they function as ground for festivals and recreations and areas of open market (Oja Oba). In the eastern part of Nigeria they function as debating ground (Ilo) and point of meetings and wrestling grounds, these occupies large open areas shaded by Awbu trees; with widely spreading branches and abundant foliage which adds more to the scenic value of the town (Domohowski, 1990).

In the colonial era, the town planning ordinance of 1928 recognized the importance of use of open spaces, after the outbreak of bubonic plague; they were setup to be used as buffer zones around buildings in the Government Reserved Areas (GRA), to cordon the spread of diseases.

The recent town planning laws of 1992, backed by decree 88, also encourages the setting aside of open spaces.

### **The value of open space**

#### **The economic value of open space**

The value of open spaces can be viewed economically or as National System. Economically, open spaces can be valued in its real estate value which is the cash price that an informed and willing buyer pays an informed and willing seller in an open and competitive market (Charles and Robert, 1996).

It was also found that open space had a greater positive effect on property values in the neighborhood where it was purchased prior to construction and included in the neighborhood design than it did where it was purchased after construction and separated from the neighborhood by a major limited access highway.

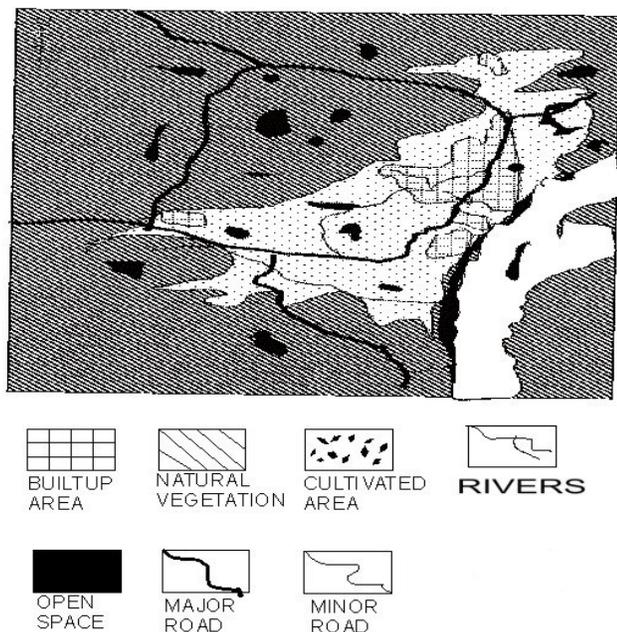
Nelson (1983) also found empirical evidence that green belts increase the value of urban land in proximity and theorized that this effect also extends to the ex-urban land market where people will locate and communicate through the green belt to employment locations in the urban area.

#### **Open space value as a natural system**

Open spaces have been found to support natural systems which has a direct benefits to the human society, this could be as factors of climate moderation, areas of groundwater recharge, flood control, air and water pollution abatement; this could move clearly be envisaged if the monetary value of this benefits is calculated of the cost damage that could result if this benefits were not available or if public expenditures were required to construct or replace the functions of the natural systems.

#### **Intangible values of open space**

The intangible values of open space have been given by



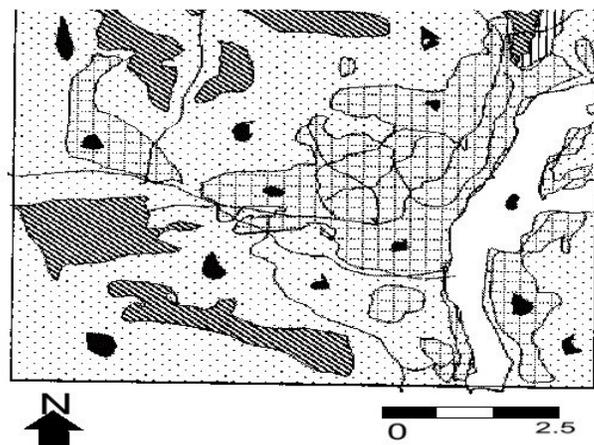
**Figure 1.** Lokoja land use 1987.  
Source: Traced from land sat images, 2007.

Rolston, 1988 as:

- Scientific value – understanding nature and how it came to be.
- Aesthetic value – appreciating the beauty of a natural feature independent of its utility.
- Genetic diversity value – maintaining the capacity to adapt to environmental changes.
- Historic value – understanding ourselves by understanding our natural heritage.
- Cultural symbolization value the contribution of geomorphic, faunal or floral features to our sense of identity.
- Character building value – the opportunity to test and learn one's limits and abilities.
- Stability and spontaneity values – Nature is both constant and infinitely variable.
- Dialectical value – the value that derives from overcoming oppositional forces.
- Spiritual value – the deep introspection inspired by wild lands and sanctuaries.

### Descriptive analysis

In setting out to examine the extent of loss of open space in the study area, land sat Tm (thematic mapper), Land sat ETM (Enhanced Thematic Mapper) 1987 and Nigeria Sat-1, 2005 were acquired and then, the thematic data was collected using a 30 metric ground resolution cell, except for the thematic band with 120 m resolution cell. The first image was acquired 10<sup>th</sup> December, 1987 while the land sat ETM was acquired on 11<sup>th</sup> November 2005. It was the same spatial resolution as Land sat TM., it was



**Figure 2.** Lokoja land use 2005.  
Source: Traced from land sat images, 2007.

however to be noted that spectral classification do not adequately identify urban extent, particularly in heterogeneous urban fringes (Vogeman et al., 1998; Zhu et al., 2000) and that Census defined urbanized areas and the proxy measures of the structure of land does not account for the commercial industrial or transportation components of urban land use; but choice was made based on other reported differences between land cover and land use, and the common practice of employing land cover to study physical processes.

### Data processing and analysis

The images were classified using ILWIS 3.2, into various land uses which are bare surfaces, Built Area, Area of Cultivation, Natural Vegetation and Water Bodies. The built-up areas were areas characterized by a higher percentage of construction materials such as Asphalt, Concrete and buildings, while the undeveloped areas are mainly the cultivated areas and the natural vegetation; which surround the developed areas. However bare, open spaces were not differentiated within these developed lands, but for the purpose of this work, bare surfaces, open spaces and areas of natural vegetation cover were all considered as open spaces as opposed to built-up areas. It will have been necessary to also include areas of cultivation but was not so, since it may give a misleading result because this areas are cultivated seasonally and areas of demarcation is a bit difficult to discern.

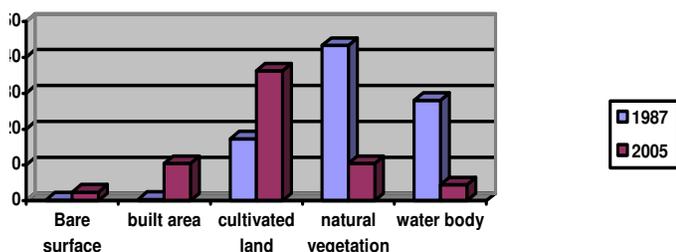
### DISCUSSION

The Figure 1 and 2 illustrates the temporal land uses changes over the period of study that is, 1987 to 2007; this can be compared to the figures on Table 1 and its chart, shows clearly the trend of increase in open space from the year 1987 to 2005, where percentage increased

**Table 1.** Variance of Land use 1987-2005.

Class	Area Coverage (KM <sup>2</sup> )			
	1987	%	2005	%
Bare surface	0.23	0.39	2.41	3.95
Build Area	0.35	0.53	10.42	18.16
Cultivated land	17.22	28.55	36.18	59.83
Natural vegetation	43.21	66	10.41	13.18
Water body	28	4.39	4.40	6.89

Source: Amujabi, 2006; Alabi, 2007.



**Table 1 Chart.** The trend of increase in open space from the year 1987 to 2005.

tage from 0.39 to 3.95%, which may be due to loss of natural vegetation due to anthropogenic activities, however the loss of open space will further more be appreciated when the figures for open space, cultivated land and natural vegetation are combined, these will now give the total area of open space for 1987 to be 43.73 sq.km while that of 2007 will now be 12.82 sq km, which gives a high difference of loss of space of 23.23 sq.km, which can further be extrapolated to the year 2009 and beyond. One can only imagine what will happen in years to come if measures are not taken to ameliorate this problem.

### Tools for revitalization

New urban patterns could be generated through the use of vegetative enclaves, these are areas left as plot of vegetation or green areas, in order to induce proper urban growth. This vegetative enclave will serve as centre lines of organization of activities in the respective settlements within the urban areas, this should however be enforced through the implementation of the town planning law of 1992 by development control, which could be made possible when sustaining open space is seen as a critical economic issue integrated for sustaining our psychological health and ethical relationship to the non human world (Gobster, 2004).

Policy instruments such as the following can be implored:

- Urban service boundary laws, this could be made to place restrictions or prohibition on existing open spaces.
- Incentive zoning, while the traditional zoning is concerned with avoiding negative externalities between land uses and works to limit conflicting issues, incentive zoning allows developers to build at higher densities in exchange for provision of social amenities and positive externalities such as parks, open spaces, in this way open spaces can be conserved and increased on the city landscape, this will be the product of the state police power.
- Transfer development rights, (TDR), this assumes that development rights of a parcel of land, as part of the right to convert, can be sold and used in another parcel. The motivation of the TDR programme is for the preservation of environmentally sensitive areas, such as agriculture land, open space and historic landmarks.

### Conclusion

The implementation of town planning laws through special programmes as aforementioned will help in revitalizing open spaces, which will in turn improve the quality of life of the urban dwellers; it will also control urban expansion, where loss of biodiversity will also be minimized.

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