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SHORT COMMUNICATION

## Urban land use, planning and historical theories: An overview of Kano Metropolis

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### ABSTRACT

The paper synthesis the current problems and suggest prospects solution in planning and development of Urban Land uses, in Kano Metropolis. It similarly presents the historical theories of urban land design and its development with a comparative analysis within Kano Metropolis visa-vise to the concept of city traditional patterns in (3) distinct regions in Nigeria and related it to modern concepts of city patterns. Similarly it reflects on the ideal of modern garden city movement approach, the satellite towns concepts were presented and recommended for scrutiny and implementation to improve the standard of our environment as well it reflection to modern time as social responsibility to all stakeholders in the planning and development of urban environment.

**Keywords:** Urban Land Use, Planning, Concept, Kano Metropolitan, City Pattern

### 1. INTRODUCTION

The United Nations Habitat conference (1970) in Vancouver recommended public ownership of land, as a means of controlling areas of rapid urban expansion similarly in Nigeria

Land was nationalized by Land use Act of (1978) following, the Vancouver conference. However, in many Nigerian cities, the existing conditions and practices appears to suggest a critical problematic situation and a lack of effectiveness in urban land planning, management development and control its noted that; land uses were misused and abused with unnecessary curved out or sub-division of plots within the metropolitan city, particularly in Nassarawa GRA, consisting most of colonial local governments, thereby distorting all the positive potential of the environments. According to Charpell and Willis (1992) that, the growing effectiveness in planning and management of urban land in Kano Metropolitan area was a result of such phenomena, over looked by the state administrator. However, today it is observed that, man can base his choice of action on an extremely wide range of possibilities, and can transform desert, topographical level mountains, within broad limits to redesign and improve the natural environments, which Kano Metropolis is not an exception, has under gone several transformation in urban structure and infrastructure. Also, the urban land can be described as an art and science of ordering the use of land on a large for location of building, public and primary circulation routes, communication lives, manufacturing commerce, sport, and recreation to achieve maximum and practicable economy convenience, and landscaping for arrangement of ideals of land (McDonnel 1964; Ntachiobi, 2017; Barau, 2015).

## **2. HISTORICAL THEORIES OF URBAN LAND (DESIGN)**

The industrial revolution in the 18<sup>th</sup> century, which has drastically changed every aspect of social life in the western world, and also found impression of new urban concepts. It is observed that, urban living condition declines greatly due to migration of farm workers to new centre of commerce and production this results into population explosion, desperate housing need and haphazard, developments concessional problem of vehicular traffic etc. the solution to the problem resulted in town planning or design of land uses, the same phenomena is experienced in Nigeria in it urban cities or centers example like Lagos, Kano Ibadan, Calabar, Jos, Edo, etc. which were regarded as Nigerian urban cities (Kironde, 1992).

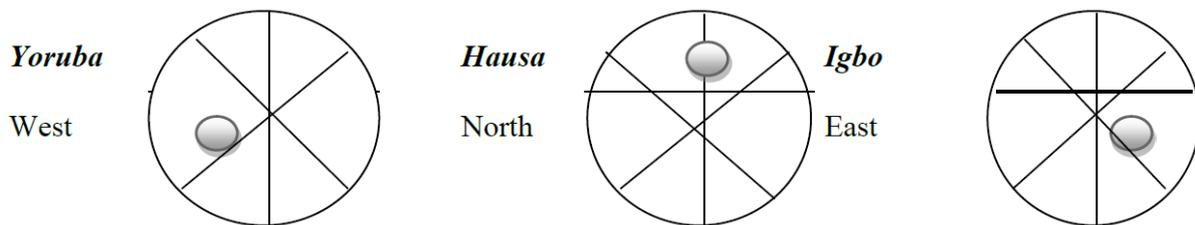
Nigeria with its great variety of geographical factors has abundant design possibilities, the various regions displays distinguished land uses, climatic variation ranging from forest regions to grass lands. The earliest known system of urban design was based on pattern related to one of three area; architecture, defense and religion, form were development out of geometry of field irrigation pattern, became the grid iron, system used by Egyptians, and reeks and Romans defense system generated radial pattern such as the ones found in most medieval town in Europe (similar to an ancient town in Nigeria such as Kano, Daura, Katsina, Ibadan, Oyo, Nsukka, etc.). Religions factors led to geometrical pattern. Aligned with cardinal direction (kibla) which usually incorporate the main axis used for religions or economical activities.

The Romans were the first make significant advance in urban technology by introducing aqueducts, and development of water supply system for waste disposal system. The revival of science during renaissance brought new theoretical interest into urban design. For ideal cities, which was developed by Leona and Albert displace elaborate system for circulation defense, services which created an axis of symmetry, as some of these concepts were develops in the renaissance. These regions (6) six geo-political zones with their different physical and climate characteristic are of recent being used as design parameters in the area of agriculture, economy, politics and other urban land uses (Nabegu and Mustapha 2014).

The Nigerian traditional urban towns were based on structure of settlements, related, to one of these areas – agriculture, commerce, defense and religion – forms developed out of geometry of field migration patterns. Some common denominators or similar are:

1. The grid iron pattern-used by Egyptians Greeks and Romans (can be related in Kano) to Sharada, Sabon-Gari G.R.A, Hotoro, Kabuga, Naibawa Layout etc.
2. Defence system generated radio centric pattern such as the one found in medieval towns in Europe (i.e Kano city pattern dictated by it city wall and gate).
3. Religion tend to generate geometric pattern aligned with cardinal direction incorporated a main axis (QIBLA) this influence orientation of religious and residential buildings.
4. The grid iron pattern layout with rectilinear shapes provides accessibly from both sides (i.e. Enugu, Jos Katsina in Nigeria)
5. Linear Pattern – layout in straight horizontal space with land uses in both sides Ex. Kaduna, Calabar, Uyo, Minna, etc.
6. The Concentric partner – Layout in form of circle with C.B.D at the centre or residential units followed by other land used i.e. Kano, Zaria, Abuja, etc.

Further theories like the sector theory by and the multiple nuclei, theory provides a framework for planning and development of town and cities for the future generation. Nigerian traditional urban design concepts is derived from the typical ancient settlement called the bicycle wheel concept made up of (Rim, Hub and spokes).



These organic concepts develop into dual city concept during colonial period of 19<sup>th</sup> century the combination of old and new towns. Example Ex-old city, Sabon Gari G.R.A. found in most city or urban centers in Northern Nigeria.

The word urban-comes from Latin word URBS. Meaning City, and a city a place where a man has a formed the most advance social and spatial organization, and the citizens, enjoys a civil life. The great European theoreticians in urban design at the end of the 18<sup>th</sup> century include. These concept need to be applied in Kano urban centers and other state town and villages within the nation and Africa at large.

Radial Pattern; the centre reserved for administrative function in our own situation it may be optional and subjected to existing situation probably residential. Next rings consist of other land uses such as commercial spaces, institutional housing, and recreation; manufacturing at the outskirts is belt of agricultural land sufficient for cultivation. The concept enhances the optimization of population, toward design for a population i.e 30,000, 50,000, 100,000.00 etc) and restricted from further growth, development or expansion. However, Howard concept in 1898 was published in his book “cities of tomorrow” was criticized and a new concept was developed in United States designed by Robert estein. The concept was an attempt to combine garden city ideas with distinct separation of traffic and circulation system.

However, Radburn might have been American first new town, where vehicular way, pedestrian walk way, street light, landscaping and service lines were separated (i.e state road Kano) as against i.e. Kasuwar Rimi Road, Bello Road, Jakara, Ring Road where both vehicles motorcycles, bicycles, pedestrians animal garbage, hawkers, are competing the space for circulation and activity.

The essence of liability is not only that combustion engines are separated from human flesh by traffic lanes, but also by the common green and private, spaces that's make Raeburn, a modern city, it has a density of 20 persons per hectare and short distances of 500m average to schools, bus stop, Mini market, and other facilities, the aim is to minimize stresses and make the most economic use of land protecting people from abrasive noise, and air pollution etc, designed for the motor age, the city that, its deeply human, similarly in the 20<sup>th</sup> twentieth century a number of theoretical city model were developed (Garba 1997). Britain was the first to design new living quarters for workers the group was known as "utopians" led by Howard Robert Owen, design new model of neighborhood in Liver pool, incorporating public parks and garden into the system, the town was designed and constructed for a certain (population) usually not more than (50,000), inhabitants. The surrounding defense system made further growth impossible, and for surplus population new towns had to be created known as satellite town, i.e such as settlement outside city wall Sharada, Dorayi, Fagge, Kura, D/Kudu, Rimi Gado, Challawa, Dawanau, Bichi, Minjibir, Gezawa, Mariri (Nabegu and Mustapha 2014).

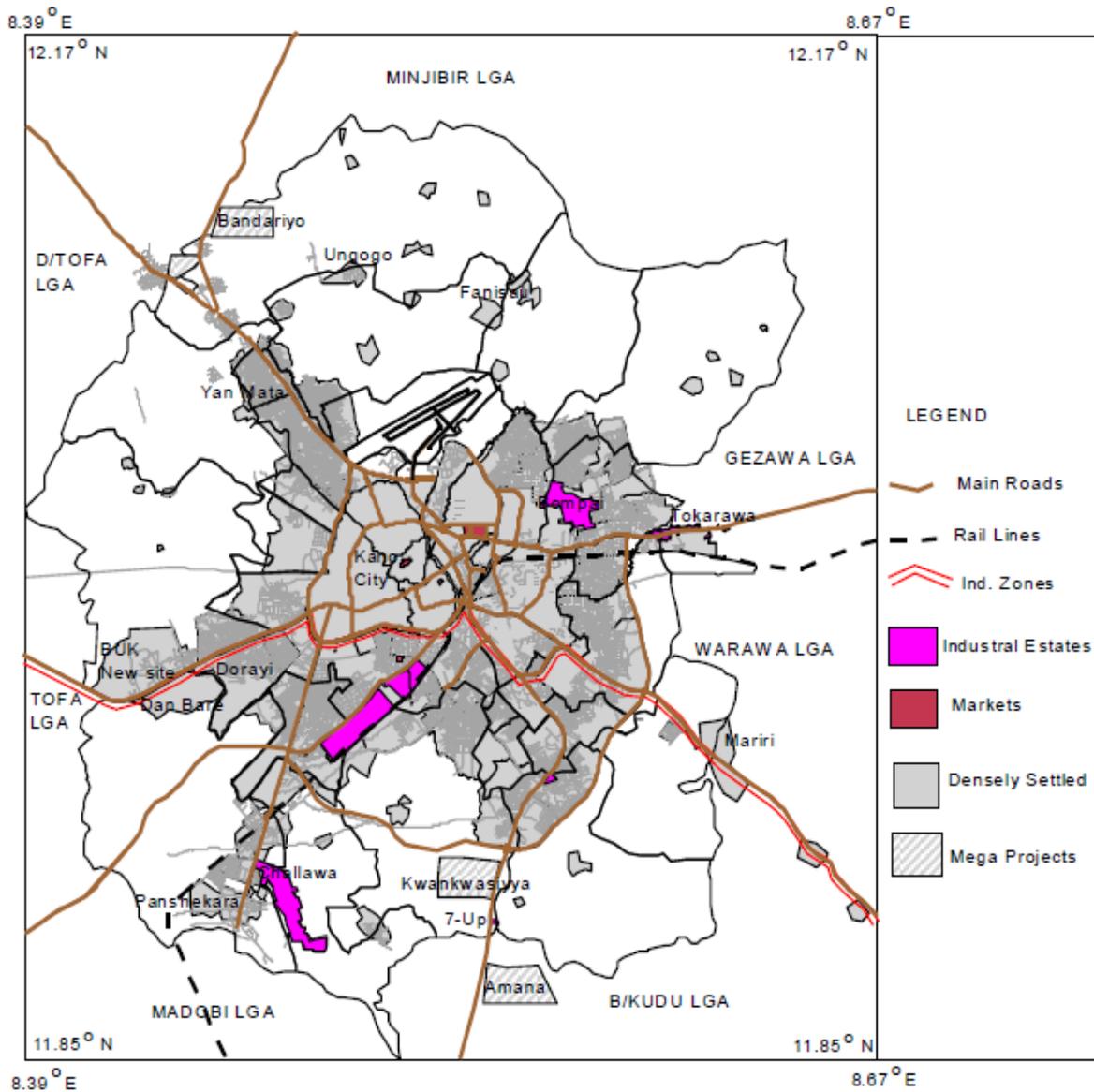
Additionally, the revival of science and technology during renaissance brought new theoretical interest into urban design concepts, the ideal cities were developed by Albert and Leonard, based on radiating star (Baneth 1981). Among other remarkable urban city designs were the linear city in Spain by Sorio Mata and industrial city by 'Tony Garnder'. Famous Architects like Le, Corbusier' produce many model of urban design such as plan 'voision' for Paris and several other proposals for Algiers, Chandigarh in India as well as his theoretical concepts of radiant city and contemporary town. Frank Lloyd Wright Contributed to the theory of urban design with his broad Acre city which proposes one (1) Acre of land for every house hold. And his vertical city development in the form of one (1) Mile high sky scrapper, where all land use activities and facility are designed and provided in multistory vertical development. In Columbia (1964) features a spatial village organization with neighbourhood organized cluster housing representing truly an interdisciplinary approach to urbanization, indeed a concept of people on earth. This concept can be applied as a concept in villages, or for the urban pool.

'Hassan Fathy' of Egypt designed 'Gorna' housing estate built with available local materials and traditional concepts with all the fundamental land uses integrated, he quoted that: (Tradition is not necessarily stagnant it can be improved and maintained in Africa).

### **3. ILLUSTRATION WITH KANO METROPOLITAN**

By the beginning of the 20th century Kano city was the largest urban settlement in Hausaland (Agboola and Zango 2014). It comprised of the space within the wall and the adjoining Fagge settlement just outside it. With its subjugation by the British in 1903, the colonial administration and economy translated in space as Nassarawa, and Bompai (for the Europeans), and Sabon Gari (for non-Europeans and non-natives). Later, Tudun Wada, Gwagwarwa and Brigade (for natives) came into existence. All together these residential units

were known as Kano township – an addition to Kano City but larger. These two units formed what came to be referred to as urban Kano. (See Fig. 1.)



**Figure 1.** Present-day Kano Metropolis

Source: Extracted from Quickbird Satellite image of Kano environment, Liman 2015.

The Oil boom era developments have incorporated adjoining villages such as Gama, Dawakin Dakata, Hotoro, Kawo, Giginyu, Unguwa Uku, Na‘‘ibawa, Sharada, and Dorayi into the urban Kano and transformed it into a metropolis (Getso et al. 2018).

- i. Residential areas dominates urban space, such as old city, Sharada Gwammaja, Naibawa, Yankaba, Kurna, tarauni, Fagge etc.

- ii. Commercial areas varies in scale amenities it may be shop or market Sabon Gari Market, Ibrahim Taiwo Fagg Road etc.
- iii. Administrative land uses (institutional State Secretariat, Gidan Murtala etc.
- iv. Educational (Institutional at Aminu Kano Way, Schools at B.U.K Road, Polytechnic, FCT, BUK, etc.
- v. Other institutional includes both public and private/corporate building i.e Murtala Mohammed Way, Katsina Road, (Banks) Federal Secretariat, Army Barrack.
- vi. Industrial spaces for processing raw materials to finished products i.e Sharada and Bompai industrial areas.
- vii. Transport and communication, Railway, B.U.K Road, Aviation centre, Kano Airport.
- viii. Agricultural land uses, farmland, and country side farmhouses, Kabuga, Mariri etc
- ix. Recreation and sports include: playground, stadiums i.e – Pillars Stadium, Abacha Stadium, Kano zoological garden and other play grounds.

Zoning is a tool used in implementing planning programmes and development controls. It sub-divides jurisdiction of land use into zones, and prescribes regulations relating to the following:

- a. Use of land
  - b. Height and bulk of building
  - c. Size of building to land
  - d. Relation of building to environment
1. Use of land- i.e residential could be sub-divided into population densities, such as low density, medium and high density areas i.e G.R.A Sharada – Naibawa, Nassarawa, Gadon Kaya, old city respectively,
  2. To determine the maximum number of stories in a building in a particular zone, i.e. Old city one story, Zoo Road, Zaria Road should be 2 – 3 storey, Murtala Mohd Way, Ibrahim Taiwo Road should be multi storey, airport Road (Kurna Road) one-two storey maximum.
  3. Has prescribe percentage of built up area and open space and set back required Ex-50% 60% built up 40% open spaces for parking, services and landscape, related to the overall area of the site.
  4. Emphasizes the magnitude of building, on site related to a particular street, or neighborhoods or and the minimum setbacks required from boundary line to building line (as prescribed by KNUPDA regulations) and the setback from the boundary line to the minimum of 2m depending upon the category of the road the setback are primarily reserved for the following purposes.

It's observed that, presently in Kano Metropolitan setback, have been trespassed and misused, with built up commercial shops, fence extension, hawkers shed, etc i.e Kabuga Road, Zoo Road, Aminu Kano way etc. Based on simple logical analysis of various allocations of land uses within the context of Kano metropolitan one may be tempted to ask a question. Are the land uses suitably allocated Sharada Industrial estate with water level between 1.2 – 1.5 below

ground level, preferably the area might be more suitable for agricultural land use because of its fertility, but the planners possibly consider orientation due North East trade winds to control pollution.

#### **4. CONCLUSION AND RECOMMENDATION**

Since almost every part of land is used by people for social economic activities even if only occasionally therefore the need for strategic town and site planning arises everywhere, especially in our 44 Local Government headquarters Example; Kobo, D/Kudu Gwarzo, Gezawa, Wudil, Kura, Minjibir, Tofa etc., and other major town becomes very paramount for us, so as to achieve a viable and sustainable environment in essence to thus apply the concept of garden city approach as follows:

- i. *Optimization of population*: - that town be limited to certain number of population and restricted from further physical growth, (50,000 – 100,000 etc.) 500,000, 1 Million to achieved desired objective.
- ii. *Proper and efficient function of facilities* such as electricity supply, telephones, road networks etc., then the design should contain capacity and requirement so as to restrict it, from further physical development and increase in population density which may creates problems such as scarcity or shortage of water supply and insufficient power supply: i.e transformer with a capacity 1000kw to supply only 20 houses each requires 50kw and assuming 20 mores houses built and connected to the same services.
- iii. *Water treatment plants*, water reservoirs or tank should be designed to specific capacity i.e 1 Million litres 500,000, etc. for a certain number of population Ex 10 litres per person daily  $10,000 \times 10 = 100,000$  person assuming the population increase by 2000 people.
- iv. *Road Network*; designed to certain number of car, in lanes with specific traffic capacity assuming, increase in automobiles it will create traffic congestion another associated problem. Similar trend of negative phenomena applies also to educational facilities and other amenities with time and increase in inadequate and insufficient power and water supplies etc. which may necessitate increase or expansion to existing capacities of service, which the expenditure to be incurred may be sufficient to construct and a new satellite town, whereas the former one may still requires another expansion and maintenance in the next 5 – 10 years if planners and government does not control or restrict population expansion and further physical development.

Finally, the study suggest that as a matter of urgency a contingency a master plan should be prepared for all our local government headquarters and other major town using the principle and concept of the garden city, secondly land and planning units/departments and Geographical Information System department be established, thirdly a general studies course be introduced in our tertiary institution for the education and enlighten the society in safeguarding of our land uses by the future generation and administrators, and lay emphasis on its continuity as essential to all human and physical development.

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