Urbanization and Sustainable Growth of Urban Kano, Nigeria

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**Abstract:** Kano state of Northern Nigeria is the fastest growing city in the sub-Saharan Africa. Having undergone massive transformations in the past century has been characterized by urbanization of sustainable rapid developmental growth. The full impact of urbanization pressures has led to the rapid pace of globalization and economic restructuring and infrastructural development of Kano dated from the colonial era. The paper seeks to highlight and undertakes a descriptive analysis of underlying issues associated with the practice of sustainable urbanization challenges facing Kano, particularly the promotion of growth management within the fast growing City which is the commercial hub of the Northern Nigeria. The qualitative nature of the paper was a critical literature review of relevant materials. The paper seeks to provide an insight into sustainable paradigm, and urban growth development of Metropolis Kano-city. The finding shows that sustainable urbanization has been a key factor in the adoption of urban growth development and expansion of Kano environs. Findings from the study reveal that physical development plans for the urban growth areas have been very pre-colonial dated and developed in harmony with the urban development which is mostly characterized by infrastructure pace.

1. Introduction

The rapid urbanization coupled with the rate of urban growth in Kano-Nigeria, a sub-Saharan Africa remains a major challenge for urban environmental sustainability. The urbanization and substantially evolution of Kano cities and environs, has played an advanced central roles in it expansion process of civilization beyond it juridical limits and into their peripheries to accommodate the most populous urban growing northern state in Nigeria. This has resulted in a fundamental change in the way society has embraced modernization, with urbanization generally perceived to provide opportunities for improved facilities associated with the economic, social, health (or welfare), physical landscape and cultural requirements of urban inhabitants [1]. Sustainable urbanization encompasses the development of urban economies, social and political systems” (DFID, 2002 as cited in [2]). Urbanization, process is responsible for cities grow and town’s development which has it own predicament on the society [3]. [4] posit urbanization as an extensive development of infrastructure, jobs creation and economic expansion, responsible for massive growth in urban population which is movement of people basically rural-to-urban migration. Oluwatayo and Opoko (2014) as cited in [5] opted urbanization as urban expansion/extensions, and transformation of rural communities into urban settlements. [6] posit urbanization to the “densification and outward spread of the built environment”. [7] posit that the provision of public infrastructure and services in neighborhood settlement remained unsatisfactory. It is argued that urbanization is crucial to the process of development, as it creates
not only a modern state [8], but also provides opportunities for reducing urban poverty and promoting sustainable development, encouraging family planning and smaller family sizes.[9]. [10] posit urbanization to improving standard of living, increasing life expectancy, and provide huge employment opportunities. This urban growth has effects on the number and complexity of human activities, which have necessitated a critical assessment of city landscape and hinterland [11].

However, urbanization can also pose major threats to the achievement of sustainable development, due to detrimental environmental impacts and other adverse effects associated with intensive resource consumption and poor management [12]. It is often argued that whilst urbanization on one hand helps create economic wealth for the nation and rising income of living standards for the urban populace, it also results in tremendous strain on the city’s infrastructure and contributes to problems associated with urban sprawl (Ooi, 2005, as cited in [13]). Kano has encountered huge urbanization challenges, ranging from rapid population growth, overcrowding, proliferation of slums, increasing vehicular and industrial pollution, overused urban facilities and urban poverty, resulted in various environmental, economic and cultural issues. [14-15] posit urbanization to have impact significant changes in uncontrolled and unplanned cities, slums, environmental decay, overcrowding, housing congestion, [16-17] crime and violence and other detrimental problems. A perspective of northern Nigeria cities over the years has revealed a challenging scenario of rapid lost in green areas due to pressure from intense human activities. [18] opined that urbanization has been responsible for a variety of problems such as extreme crime rates, unemployment, high poverty rate, slums, insecurity and environmental degradation.

The framework for this paper was drawn from an in depth and intensive search on literature review of related materials such as the development master plan, journals, documented reports, books focusing on the agglomeration of urban settlements in Kano Nigeria back to the advents of the British Colony. This paper aims to assess the variance between Urbanization and its ascertaining sustainable implications on the environmental development of Kano urban metropolis. The Objectives of the paper look at Urbanization transitions over the years and highlight the major development issues and trending challenging amid rapid urban growth as it affect a pathway to sustainability and resilient urban development in Kano sub-Sahara Africa.

2. Urbanization, Unprecedented City Growth and Challenges

The rapid population growth and expansion of Kano cities have notable implications for the management of urban infrastructure provision and service needs of their inhabitants. The preferred forms development of urbanization are denoted by compact sprayed building patterns of heterogeneous vibrant population growth as well as major physical and functional urban transformations. These are the consequences of any city region focusing on economic development [19-20]. Urban areas in Kano Metropolis continue to grow in the demographic and infrastructural basis; the environment becomes very much threatened due to intense human activities. Urbanization in Kano is marked by steady physical expansion which often surpasses formal urban planning system [21]. This has resulted in the encroachment and conversion of rich natural green agrarian areas depicted in form of wetlands, farmlands, water bodies and earmarked open spaces within the urban area to residential and other form of economic uses. The unprecedented rate of urbanization has notable led to changes in demand of building redevelopment, alteration and improvement that required constant adjustment to the urban structure of the environment [12].
The rising number of population which encourage city growth and expanding standard of living is profitable for the approval of existing neighbourhood or street demolition of existing building and redeveloping them into a higher and demanding use [12]. Most physical redevelopment brings about changes in use [22]. The geographical constraints and trade availability have made the land developable, resulting in high densities and influx of people making population of Kano among the highest in Northern Nigeria and second after Lagos. The constant urban growth has put the city under physical and economic challenges to manage the city-state, not only in terms of public housing and infrastructure provision, but also in terms of addressing social and environmental challenges [23]). This This [24] posits that the provision of landscape infrastructures elements within the open outdoor spaces is very paramount to the growth of the communities. [25] opined population of Kano to be evenly distributed with great variation between urban and rural areas, with highest numbers of the people living within Kano metropolis, which comprises of the following LGAs: Municipal, Dala, Gwale, Nasarawa, Tarauni, Kumbotso and Ungogo respectively. The burst in Kano settlement is characterized by urbanization, and this is as a result of people and community in pursuit of agricultural intensification and economic diversification. [26] opined that these raised land productivity to sustain large family and boost small sentences family. The building and subsequently extension of Kano city Wall was an inducement of urbanization [27], which attracted the expansion of the built up areas, used for residential, commercial and industrial purposes. The urbanization of Kano is pre-colonially dated which consequently contributed to it infrastructural expansion and development (Hambolu, 2003, Shea, 2003, Mabogunje, 1969) as cited in [29]). Urban agglomerations of Kano metropolitan spaces have attract large volumes of highly skilled and unskilled labor based on the influx of people in search of better jobs; this has led to attraction of better wages from rural to urban settlement. This also is responsible for high concentration income and investment on the surrounding states and environs, impacts on the local economies, which also have a positive influence on the people by providing employment opportunities, attraction of better lifestyle, healthcare, education and basic infrastructures. [30] opined that rapid urbanization trend has led to the conversion of mass urban lands for development purposes which has consequently resulted in the destruction of the natural ecosystem and green spaces. Urbanization in sub-Saharan cities is powerfully driven by informal settlements pattern [31]. This has accomplished the fact that weak land use planning for the region has been responsible for the growth of informal settlements. However, the continued urbanization process has inevitably led to sprawling of population and industrial activities towards it metropolitan, leaving most parts of the city centre with street hocking (road-trading) and beggars only. In addition, the relatively lower living costs, availability of good road network and affordable public transportation with ease of doing business are attracting city workers to live in the city and in neighboring fringing settlement. The major challenges to sustainable urban development in most fringing settlements are spontaneous and uncontrolled development [32] which leads to absence of public utilities, deplorable environment, poor living conditions, inadequate social amenities, increase in social vices among several others [33]. These patterns of urban development have led to high travel demand from neighboring states, increased transportation costs, worsening congestion, environmental degradation, inner city dilapidation, and steady population inclination. Trade remains the main mechanism to boost development, with more buildings for mixed commercial and residential developments are also encouraged in inner city areas as this encourage livability. However, commercial strip sprawl along major roads
leading towards and out of the city remains a legacy of earlier sprawl. This is found in the entire city that further enhances urban sustainability efforts by emphasizing livability and quality of life for its local communities with quality urban services, and environmental sustainability. Urbanization has affected the urban open spaces that is lacking in most residential area of Kano Metropolis, [34] as a result of building encroachment, commercial activities and the large population of human [35]. Roaming housing construction has plight the much urban fringe peripheral settlement which has posed health hazard due to human waste, poor drainage blockage, run-off waste cistern, and breakage of septic tank, industrial waste and pollution. The urban fabric vegetation covers no more give room to existence of green open spaces even right from the planning of this neighborhood, cities in urban center [36]. Although, the integration of land use mix development with trade networks forms the backbone of the city’s sustainable urban development framework. The numbers of out-migration settlement from the city centre is partly due to the shortage of affordable housing to accommodate it teeming population growth.

![Urban growth rate in Africa](http://www.grida.no/graphiclib/detail/urban-growthrate-in-africa_12bb)

**Figure 1.0: Urban Growth Rates in Africa**

The study Brueckner (2000) as cited by [37] opined that the free market has failed to address excessive urban growth in three ways: failure to take account of the social value of open space upon land conversion into urban use, failure to recognize the social cost of congestion as a result of excessive commuting, and failure to recognize the cost of public infrastructure. Land market intervention avoids excessive land speculations, and ensures that development takes place at the desired location, with the correct types and density of development, and at the right time. On the global front, urbanization and development activities stimulated by fast growing population which have impacted negatively and reduced natural vegetation cover of shortage arable land
Rapid urban growth and expansion has results in urban sprawl, whereby new extensions are developed around the edges of urban centre encroaching on other settlement. Urban extension creates suburbs that are then dependent on sustainable development which cannot be manage or handle by the influx of urban migration for rural area which results in the growth of shanty towns, cities and suburban slum areas associated with various problems. Sajor, 2001, as cited in [39]) opt that urbanization prevents the populace from earning decent livelihoods, deterioration, lack of adequate land and distribution, droughts, poor health systems, extreme poverty and religious conflict.

Figure 2.0: The study area (Kano metropolis) [40]

3. Urbanization and Sustainable Growth Management of Kano

3.1 The Colonial Era

Kano city being situated at the apex of long distances trade’s routes running along north-south and east—west axes of the Sahara desert, is an extensive land mass that substantially lies above the two Nigeria major Rivers Niger and Benue. The urbanization of Kano boosted both commercial and industrial infrastructure. This [23] posit as a terminus and distribution centre for foreign and international trade commodities. The Fertile soil- typical of Sahelian belt of Sudan grassland which rainfall favorable and encourages agriculture and production of raw material for industries and international trade. The urbanization and sustainability of Kano started in 1903, with the advent of the British colonial master, their expedition facilitate Urbanization of sustainable infrastructure development and expansion of activities in Kano. This urban renewal was responsible for Kano being developed into dual city of the old walled City and the new city (outside) [23]. The much sustainable urbanization of Kano took place outside and within the new city, which is today the modern Kano Municipal. The litany of the urban sustainable growth of Kano at his period was established with the development of residential area of Nasarawa. The Army and Police officers residential area at Bompai was built in 1904, which afterward led to the creation of Sabo Gari market in 1912 and the commencement of railway operation. This led to
the migration of the Southern Nigeria in large population and subsequently the creation of Tundu Wada for the migrant elsewhere in northern Nigeria in 1914. The urbanization and subsequently sustainability at this period were accompanying with development of economic of the Central Business District (CBD) in 1918. The creation of Fagge –ta-Kudu resident in 1915 were mainly for Lebanese and Syria foreigner. [23] posit that Motorable roads and provision of Electricity and establishment of Hospital and Clinic in 1925, and Nasarawa European Hospital in 1927. The education sector started properly during the reign of Emir Abdullahi Bayero (1926-1953) with the creation of Kano Judicial school (1929), which later became Kano Law School (1934) and later transformed to School for Arabic Studies, Kano International Airport commence operation in 1935, while the native in the colonial forces (Army and Police) were settle at Brigade in 1945 and St. Louis Girls and Boys Primary School in 1958 respectively.

![Figure 3.0: Kano Metropolitan Growth (1962) [23]](image)

### 3.2 Post-Independence Era

However, prior to the creation of Kano state in 1967 attracted more migrant and further spatial expansion of the municipality and environs leading to the establishment of more residential housing settlement (estate) such like Jan-Bulo (Red bricks), Zoo road, Gwammaja, Ja-oji. This [23] posit were extended to the surrounding villages at the fringes peripheral, which were fully in cooperated into the Kano urban setting. These settlements includes: Unguwa Uku, Rijiya Lemo, and Na’ ibawa, Dorayi, Gyadi - Gyadi. After the Nigeria civil war, urbanization improved the colonial expansion of educational infrastructure in Kano, TABLE:1, Government agencies and parastatals TABLE:2,were established. In addition, both military and paramilitary and their training institutions such as the Flying Training School (Nigeria Air Force), Nigeria Police Academic (Police University), Custom Training School, Immigration Training School and Fire Services Training Schools respectively. This was able to sustain till recent time the social infrastructure, political with government activities / presence by the end of 20th century. The Kano metropolis had expanded to about 60km2 out of which 48km2 was built-up [41].
Table 1: Higher Institution of Learning in Kano State.

| Institution                                        | Year of Established |
|----------------------------------------------------|---------------------|
| Federal College of Education                       | 1961                |
| Kano State College of Art, Sciences & Remedial Studies | 1972               |
| Bayero University Kano                             | 1973                |
| Aminu Kano College of Islamic Legal Studies        | 1976                |
| Audu Bako College of Agriculture                   | 1977                |
| Sa’adatu Rimi College of Education                 | 1981                |
| Kano State Polytechnic                             | 1987                |
| Federal College of Education (Technical)            | 1987                |
| Nigeria Law School, Bagauda Campus Kano             | 1999                |
| Kano University of Sciences and Technology          | 2001                |
| Maitama Sule University (formerly Northwest university) | 2012               |
| Skyline University Kano                            | 2018                |

Source: Danyaro 2006, in Gambo (2014)

The late 1970s and early 1980s witness the influx of established industries at the municipal area of Sharada, Chalawa and Gunduwara Hadejia road. This period also pre-exist market expansion and modernization of addition markets built at Sharada, Kofar Wambai, Kofar Ruwa, Tundu Wada among other (Mustapha and Yakudima, 2008 as cited in [23]).

The study of Mortimore (1993) as cited in [23] shows that Kano agricultural intensification as survived intact pressure of sustainability from urbanization in area of crop production, livestock and tree husbandry which form the functional relationship of a stable ecological and economical system. Mortimore and Tiffen (1995) as cited in [42] opined that increase in population has been the bane of increase scarcity of land that promotes investment both conservation and yielding enhancing improvement. The agricultural sustainability as opined by [42] perceived land as precious resources which provide the source of family livelihood, prestigious commodities as asset material that bond one generation linkage to another.

TABLE 2: Government agencies and parastatals in Kano State.

| Agencies and parastatals                      | Year of Established |
|-----------------------------------------------|---------------------|
| Kano State Education Resource Development     | 1967                |
| Kano State Scholarship Board                  | 1968                |
| Kano State Library Board                      | 1968                |
| water Resource and Engineering, Construction Agency (WRECA) | 1973               |
| Kano State Universal Basic Education Board    | 1976                |
| Kano Printing Press and Triumph Publishing Company | 1980               |
| Kano State Agency for Mass Education          | 1980                |
| Kano State Housing Corporation                | 1980                |
| Kano Television Corporation                   | 1982                |
| Sciences and Technical School Board           | 1982                |
| History and Cultural Bureau                   | 1987                |
| Kano State Transport Authority                | 1988                |
| Kano State Censorship Board                   | 2001                |
| Kano State Teachers’ Service Board            | 2003                |
| Kano State Zoological Wildlife Management Agency | 1999               |

Source: Danyaro 2006, in [23]

Prior to mid 1970s, developments were guided mostly by Kano State Urban Development Board (KSUDB), whose functions were to plan the entire areas of Metropolitan Kano and peripheral adjoining districts (Maiwada 2014). The provision of affordable housing has been a huge success when early resettlement programmes in the 1945s flourished into high density public housing developments in new areas from 1973 onwards to accommodate an increasing urban population. This development was to guide was guided mostly by small scale plans for areas where
development pressures were most intense, and by an overall policy guideline encouraging the
decentralization of population and employment, accommodating increased urban development
pressures, following rapid population growth and urbanization as a result of immigrant since the
amalgamation from 1914s which has put a great pressure on its infrastructure. In the 1980s the
Chalawa, Sharada and Gunduwawa industrial estates were established in addition to many small
scale industries.

![Figure 3.1: Kano Metropolitan Growth (1981) [23]](image)

The change of the planning authority in 1990 renaming Kano State Environmental Planning
Agency (KASEPPA). It activities and scope were enlarged to include environmental protection,
planning framework and forms the basis for more detailed plans and programmes. By 1999, the
creation of ministry of environment now renamed (KASEPPA) as Kano Urban Planning and
Development Agency (KNUPDA). This strategy puts more emphasis on accommodating social
and environmental requirements within the physical and economic spheres of urban
development, in order to achieve its sustainable urbanization goals. The various plans and
actions formulated under the Kano government are concerned not only with meeting population
requirements for housing, services and facilities, but also paying attention to sustaining the
growth of key economic activities. In the early 2000, within the city Central Business Centre
(CBD), the metropolitan witness large scale Departmental Stores such as Sahad store, Country
Mall, Jujin Labu, Jifatu, Shoprite, Eateries Outlets such as Mr Biggs, VIP Restaurant among
others numerous consultancy and shopping complexes providing wide range of services both in
health, education, Law, Estate Management and Property development [23].

The last four decades has seen Kano rising under rapid population growth, and has made Kano has a
cosmopolitan city with very high compact residential densities and mixing of other land uses,
serviced by a multitude of urban public transport and infrastructure facilities. From the mid
1990s population growth in Kano and consequently the city-metropolis has suffered from heavy
traffic congestion as well as discontinuous patterns of housing development that has sporiacally
infringe on peripheral settlement of the city leading to compact development and congested
neighborhoods urban sprawl which were strategically promoted by allowing customary sales of
lands and shady land racketeers of law enforcement officers.
4. Materials and Methods

4.1 Study Area.
Kano metropolis is the capital city of Kano state Nigeria, is the most urbanized urban centre and biggest commercial and industrial centre in Northern Nigeria with a population of over 4 million people. The study area has an Unprecedented City Growth and Challenges with was able to sustained throughout it urbanization period. It is located between latitude 11°59' to 12°02' N and longitudes 8°33' to 8°40'E and is about 481 meters (or about 1580 feet) above sea level, with a total urban land area of 137Km2 and 499Km2 metropolitan area. The climate is a hot, semi-arid type with an annual average rainfall of about 690mm (27.2 in); majority of which falls from June through September. The vegetation is a savanna type. Kano metropolitan City consist of: Dala, Fage, Gwale, Municipal, Nasarawa, and Tarauni) and some parts of Kumbotso, Ungogo, and Tofa Local Government Areas.

4.2 Methodology
The study approach used both quantitative and qualitative research Triangulation (Mixed Method) were data were gathered from literature review of academic articles, textbooks, published journal and research book of Conferences Proceedings, internet related to the study. the study also adopted a historical development of sustainable growth of Kano Metropolis based on social, environmental and economic factors. This was supported by observational checklist of field surveyed carried out by postgraduate students of the department of Architecture, Bayero university Kano, were questionnaires were distributed to of the six (6) area council that make up Kano metropolis, with a purposive target on residential, commercial and economic neighborhood and growth of the city. Data regarding the effects of urbanization on the city development activities were obtained. The methods used includes data collection through volunteers’ MSc and BSc final year students of the Department of Architecture BUK, who supervised, administered, monitored and collected the completed copies of well-structured questionnaires containing closed-ended questions. A total of three hundred (300) copies of questionnaires were distributed on basis of fifty (50) per Area Council, two hundred and one (201) which is 67% of the number of distributed questionnaires were retrieved and employed for the analysis which was considered sufficient for the study. The questionnaires comprised of two sections. Section one captures the demographic profile of the respondents and sections two
consists of the respondent’s assessment on seventeen (17) Likert items. The scale were allocated the following weighted score of 1 to 5 on the rating of urbanization effects options on the sustainable built environment, as respondents regarding the variables measured according to the degree of importance; for the Likert-type scale of five in the following categories: very good- 5 point, good-4 points, normal-3 points, bad-2 points and very bad-point were used based on their significance. Descriptive and inferential statistics were used to analyze the demographic data of the respondent’s chart and graphs. Frequency distribution of variable under study including Mean score, Standard deviation and Per centage score for satisfaction while Relative Importance Index (RII) was used to the respondents’ scores of the basic outdoor infrastructural variables. The relative importance index (RII) is given by equation (1)

\[ R. I. I. = \frac{1n1+2n2+3n3+4n4+ 5n5}{5N} \] ……………….. (1)

Where \( n \) is the weighting given to each factor by the respondents, ranging from 1 to 5, 5 is the highest weight (i.e. 5 in the study) and \( N \) is the total number of samples. Each coded response was multiplied by number of respondents, which gave the Weighted Value (WV). The Summation of the Weighted Values (ΣWV) was divided by number of respondents (n) to arrive at each component Mean Weighted Value (MWV) as shown in Table 3. Relative Importance Index (R. I. I.) was used to rank the level of Impact the respondents attached to the effect of Urbanization in the study area. The guide for the rating is given in Table 4.

### Table 3: Guide to degree of significance Impact

| Area Council Rating | Questionnaires Administer. | Questionnaires Retrieved | Response Rate (%) |
|---------------------|---------------------------|--------------------------|-------------------|
| Dala                | 50                        | 27                       | 13.44             |
| Fage                | 50                        | 30                       | 14.93             |
| Gwale               | 50                        | 42                       | 20.89             |
| Municipal           | 50                        | 41                       | 20.39             |
| Nasarawa            | 50                        | 28                       | 13.93             |
| Tarauni             | 50                        | 33                       | 16.42             |
| Total               | 300                       | 201                      | 100.00            |

Source: Author Fieldwork survey, 2019.

### Table 4: Guide to degree of significance Impact

| Degree of significant | Rating          |
|-----------------------|-----------------|
| High Impact           | 0.75 above      |
| Low Impact            | 0.65-0.74       |
| Less Impact           | 0.60-0.64       |

Source: Vanduhe (2012)

The Guide to degree of significance in Table 2: were use to rank respondents R.I.I both in Table 5 and 6 respective. Factor with R.I.I (0.75) and above were considered “High Impact” in this study. This corresponds to the rating in the “upper quartile” range between (75%) and above. R.I.I values between 0.70 and 0.74 correspond to the “median quartile” range between (70%-74%) were considered “Low Impact”, while R.I.I values below 0.65 correspond to ‘Lower quartile” were considered to have “Less Impact” in this study respectively.
5. Result and Findings

From Table 3.1, seven (7) impact of urbanization on the metropolis were examined based on R.I.I. values equal to or greater than 0.75. Among the variables examined, “Over Population” have a mean above 3.5. Only “High Crime Rate” and “Tenure Insecurity” recorded a mean value of 3.0 with R.I.I. of 0.60 and 0.67 respectively. This is applicable to Table 3. Factors responsible for urbanization pressure on “Farmland” with (M= 3.776), R.I.I. of 0.755, while both “Urban Sprawl” (M= 3.731) with R.I.I. of 0.752 and “Economic / Marketability” (M= 3.730), R.I.I. of 0.750 are ranked 1st, 2nd, and 3rd respectively and were considered “High Impact” rated in the “upper quartile”. Other are “Nature of Housing Construction” with (M=3.398) with R.I.I. of 0.670, “Encroach to Suburban settlement” (M=3.297) with R.I.I. of 0.659, “Plot and Street Sizes” (M=3.283) with R.I.I. of 0.656, and “Demolition of Old Settlement” with (M=3.255), R.I.I. of 0.651 were ranked 4th, 5th, 6th and 7th respectively, having rated “Low Impact” in the “median quartile”, while “Master Plan Implementation” (M= 3.159), R.I.I. of 0.631, “Planning Regulation” (M=3.130), R.I.I. of 0.626, and “Land Revocation” (M=3.025), R.I.I. of 0.605, were ranked 8th, 9th, and 10th respectively and were rated with “Less Impact” in the “Lower quartile”.

Table 6: R.I.I Effect of Urbanization

| Variables                        | N   | SWV  | MWV  | SD    | R.I.I  | Rank | Rating     |
|----------------------------------|-----|------|------|-------|--------|------|------------|
| Pressure on Farmland             | 201 | 759  | 3.776| 0.0187| 0.755  | 1st  | High Impact|
| Urban Sprawl                     | 201 | 750  | 3.731| 0.0185| 0.752  | 2nd  | High Impact|
| Economic / Marketability         | 200 | 689  | 3.730| 0.0186| 0.750  | 3rd  | High Impact|
| Nature of Housing Construction   | 201 | 683  | 3.398| 0.0169| 0.679  | 4th  | Low Impact |
| Encroach to Suburban settlement  | 198 | 653  | 3.297| 0.0166| 0.659  | 5th  | Low Impact |
| Plot and Street Sizes            | 201 | 660  | 3.283| 0.0163| 0.656  | 6th  | Low Impact |
| Demolition of Old Settlement     | 200 | 651  | 3.255| 0.0162| 0.651  | 7th  | Low Impact |
| Master Plan Implementation       | 201 | 635  | 3.159| 0.0157| 0.631  | 8th  | Less Impact|
| Planning Regulation              | 200 | 626  | 3.130| 0.0156| 0.626  | 9th  | Less Impact|
| Land Revocation                  | 199 | 602  | 3.025| 0.0152| 0.605  | 10th | Less Impact|

Source: Author field Research 2020.

5.1 Discussion

Maigari (2018) stated that the housing demand in Kano is higher than the supply thereby forcing the low-income earners to improvise for informal housing accommodation, thereby putting pressure on farmland. This has been the most significant impact of urbanization on the Kano metropolis. Maiwada (1995, 2000) posit that this is responsible for the disappearance of Open Spaces and recreational areas in Kano Metropolis as urban settlements are constantly being “Encroach to Suburban settlement”. [43] posit rapid urbanization trend has led to the conversion of mass urban lands for development of commercial activities. Moritmore (1993) as cited in [23]
shows that Kano agricultural intensification as survived intact pressure of sustainability from urbanization. Urbanization has great impact on settlement leading to “Urban Sprawl”, this [44] posit as a major challenges of spontaneous and uncontrolled development to sustainable urban development in most fringing settlements, [31-36] developing city and it peripheral settlement are constantly be subdivided leading to development of land without the knowledge or approval of planning authorities. Planning Regulation agencies, and “Master Plan Implementation” has not fulfilled their obligation to it optimal task, this has less effect of urbanization, where [26] opined periodic monitoring of peripheral settlement for proper construction in line with building regulations. Oluwatayo and Opoko (2014) as cited in [18] leading to expansion/extension, and transformation of rural communities into urban settlements.

The Pressure on Urban Infrastructure has High Impact effects of Urbanization resulting in tremendous strain on the city’s infrastructure that contributes to problems of urban sprawl (Ooi, 2005, as cited in [15]). [11] opined that the pressure on infrastructure facilities has infiltrate high rate of population growth such as overcrowding, urban slum and substandard housing (Daramola 2010) unhealthy and poor environmental conditions, influx of rural immigrants and deplorable urban services, that required extensive development, this [15] posit adequate landscape infrastructures facilities in outdoor environment. [12] opined that the provision of public infrastructure and services in neighborhood settlement has remained unsatisfactory. Urbanization and sustainable growth of Kano has High Impact on the “Economic / Marketability” of the study area, (Ooi, 2005, as cited in [14-16]) jobs creation and economic expansion, and rising income and living standards for the urban population. [4] posit Kano to be terminus distribution centre for foreign and international trade route commodities of sub-sahara Africa, [23] the metropolitan spaces have attracted large volumes of highly skilled and unskilled labor based on the influx of people in search of better jobs and trade, livelihood and attraction of better wages from rural to urban settlement. The Nature of Housing Construction as posit by [17] has no compliance with current and proper planning and building regulations, [19] lack of implementation and planning policies and [35] opt that construction still use locally made mud-bricks as building material, which were general phenomenon in most part of northern Nigeria. Plots and streets, sizes are design smaller due to large demand for land, as homestead are made to live on small scale of land as an essential indicators of measuring urban environmental quality [35].

6. Conclusions and recommendations
Despite the level of economic, social and cultural development in the Kano region, urbanization and it sustainability is inevitable and indispensable force to reckon within the urban Kano and environs. Just as the precedent features of urbanization growth has positive effects with its corresponding developmental changes that stimulates both human, technology advancement and means of sound growing and sustainable environmental, it has it negative effect on the society. Urbanization of Kano has facilitates numerous opportunities for infrastructural development, trade and commerce and both industrial and agricultural production over time lane. The development of Kano metropolis were able to sustained the growth of health, education and improved adaptation mechanism to coiled into the fold of urbanization changes and challenges. The urban growth of Kano city has remained one of the formidable cities of the sub-Saharan Africa communities that have kept pace with the fundamental changes in economic sustainability that contributes to development.

In order to achieve sustainable urbanization, effort by citizens, professionals, governments, agencies and politics have brought together into shaping the physical, economic dimensions and
social environment of urban settlements. Whilst urbanization is inevitable and its undesirable effects have led to an increased awareness that urban development must be carefully managed in order to be sustainable. Sustainable development practice and development regulatory system in Kano, Nigeria requires enforced modification for sustainable urban policies that focused on tackling rapid urban growth challenges. The development of Kano city today has been infringed by development practices which were envisioned to achieve sustainable urban development by creating policies which suggested the integration of the city sustainability growth. Kano has experience in terms of growth management resulting from strong urbanization foundation, backed by sustainable planning regulations. The city’s geographical location in the sub-Sahara has been as natural containment, combined with concerted efforts towards promoting high frequency public trade, and industrialized economic which have contributed to create a compact city with high densities and heterogonous society. Porter (2002) as cited in [26]) apt that managing urbanization and the development process involves not only formulating strategies and programmes for future development but also aligning political decisions and community demands to achieve consensus, and subsequently implementing this consensus for the achievement of the stated management goals. The developmental growth and planning of Kano by successive administration, from colonial era has been remarkable in the economic development amid the rapid urbanization and challenging environmental sustainability. Amid the rapid population growth and urbanization in Kano regions have indeed placed great pressures on their environments. Sustainable urbanization has become the desires able, promoting resources for urban expansion with thoughtful planning, to achieve an optimum balance between development and sustainability. City growth and expansion of higher land consumption, and discontinuous urban development will continue over the immediate and longer term will require ‘planning authorities to implementing growth management strategies. This ensures that all development will have some degree of standardization and will occur harmoniously with existing development. , relying on collaborative planning processes to achieve even more sustainable forms of urbanization.

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